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## MENINGOCOCCIC MENINGITIS AND ACUTE MENINGOCOCCEMIA

### A CLINICAL STUDY

CHARLES V. CRASTER, M.D., D.P.H.

Health Officer, Department of Health  
AND

HENRY SIMON, M.D.

Night City Physician

NEWARK, N. J.

The syndrome produced by the meningococcus organism when it attacks the meninges remains unconquered. One is impressed by its low incidence and high mortality as contrasted with those of other contagious diseases, such as measles and varicella, which have a high incidence and a low mortality. Persons who have not had measles or chickenpox will contract the disease because they have not acquired immunity by having had it. In the case of meningococcic meningitis, only infrequently does one of the many persons exposed to the disease contract it, although about one half of the persons exposed during epidemics become carriers of the organism.

One cannot sit complacently and boast about the tremendous advances in curative and preventive medicine, because the mortality of meningococcic meningitis in the first year of life is still about 50 per cent. In the accompanying table the mortality in Newark, N. J., for the past nineteen years is shown to range from 75 per cent in 1923 to 25 per cent in 1926, 40 per cent in 1932 and 46.8 per cent in 1936. It averaged 44.4 per cent. This figure represents 572 cases, with 254 deaths, including those at all ages. In 1918 there were 102 cases, in 1930 fifty-three, in 1935 eight and in 1936 forty-seven.

Epidemics of meningococcic meningitis tend to appear every ten years in certain localities. This is not true of Newark. A wave of epidemic proportions might strike Newark. It is for this reason that an effort must be made to perfect those measures which will tend to lower the death rate. Our paper has been written with this purpose in mind, namely, to attempt to contribute and to emphasize certain fundamental phenomena, which, when observed at the bedside of the patient, will mean an early diagnosis of meningococcic infection and the early use of effective therapeutic procedures.

Dr. Ellis L. Smith of the Isolation Hospital of Essex County permitted the utilization of case histories and Dr. Harrison S. Martland, chief medical examiner of Essex County, the quotation of autopsy reports. Dr. Josephine B. Neal, chief of the meningitis division of the department of health of New York City, offered valuable suggestions. Dr. Horace Bell, resident at the Essex County Isolation Hospital, verified the diagnosis in cases in which the patient was sent to that hospital. The late Dr. Frank W. Pinneo of the Babies Hospital cooperated in the report of case 3.

There are two theories as to how the meningococcus reaches the meninges. One is that the meninges are invaded by direct extension through the cribriform plate of the ethmoid bone, with the original source of the organism in the nasopharynx. The other is that the organism passes from the nasopharynx into the blood stream and thence to the meninges. Many authorities favor the latter theory. They say that blood cultures are positive before the meninges are invaded and before the spinal fluid becomes cloudy. They add that there are many cases of infection of the blood stream (meningococcemia) without the production of meningitis.

We are going to present some clinical data stressing the rash in meningococcic meningitis. There is a specific rash, just as there is a rash for measles or scarlet fever. However, this rash occurs in only 10 to 15 per cent of the cases. The spots are petechial or purpuric. They occur before the beginning of the meningeal signs, that is, before the spinal fluid becomes cloudy, and disappear by the third or fourth day unless unusually extensive. By the third or fourth day the spinal fluid has in most cases become cloudy. This phenomenon is caused by bacterial emboli in the stage of bacteremia. A massive purpuric rash occurs when the condition is fulminating. The petechiae may be found on any part of the body, most frequently on the extremities. They look like flea bites, hence the term "spotted fever" has been given to this disease. They do not fade on pressure, vary from pinpoint to one-half inch in diameter, often being irregular in shape, and when they fade, leave a rusty stain.

McLean<sup>1</sup> stated that in 83 per cent of his cases he was able to obtain smears showing intracellular meningococci by puncturing a petechial or purpuric lesion with a needle and staining the resultant drop of blood, smeared on a glass slide, with the Gram stain.

Josephine B. Neal<sup>2</sup> stated that this may be a difficult bacteriologic test and that it may be necessary to wait for the results of the culture of the blood. At times gram-positive organisms are pleomorphic and will decolorize with the Gram stain. Sometimes the meningococcus on an initial smear will not decolorize and appear gram positive. The importance of a smear from a petechial or purpuric lesion is demonstrated by the fact that if gram-negative organisms are obtained a quick diagnosis of meningococcemia may be made, before the blood culture has grown and before any change has taken place in the spinal fluid. A purpuric or petechial rash should, even in the absence of any meningeal sign, enable one to foretell that meningitis

<sup>1</sup> McLean, Stafford and Caffey, John. Endemic Purpuric Meningococcus Bacteremia in Early Life. Diagnostic Smears from the Purpuric Lesions. *Am J Dis Child* 42: 1053-1074 (Nov.) 1931.  
<sup>2</sup> Neal, Josephine B. Meningococcic Meningitis in Children. *J A M A* 105: 568-571 (Aug. 24) 1935.



may develop in the near future. Numerous diseases have an accompanying purpuric or petechial rash. A rash due to the presence of the meningococcus requires the finding of that organism. Petechial and purpuric rashes occur when the blood platelets are deficient (thrombocytopenic purpura). Secondary purpura may be due to poisons, such as mercury, arsphenamine and benzene. Infections such as subacute bacterial endocarditis and hemorrhagic forms of the exanthems produce cutaneous

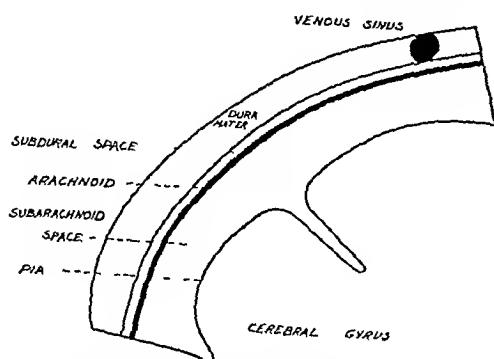


Fig. 1—The meninges (reproduced from figure 257 in Howell W. H. A Textbook of Physiology ed. 9 Philadelphia W. B. Saunders Company, 1927)

hemorrhages. Severe anemia, leukemia or hemophilia may cause purpura. It is therefore obvious that a meningococcemic purpura requires the identification of the etiologic gram-negative diplococcus.

Like the exanthems, certain atypical rashes may occur with cerebrospinal fever. Herrick<sup>3</sup> mentioned a maculopapular rash resembling the roseola of enteric fever. Holt<sup>4</sup> stated that a general erythema or a morbilliform eruption closely resembling measles may be present. Osler described an erythema, dusky mottling and rose-colored hyperemic spots like the typhoid rash.

Boone and Hall<sup>5</sup> reported a case of fulminating meningococcic septicemia in which a direct blood smear, taken for a routine white cell and differential count, when stained with Wright's stain revealed numerous intracellular and a few extracellular diplococci, the blood culture was positive for meningococci. Thus it is evident that a nonpurpuric skin may harbor meningococci in the cutaneous capillaries, which are demonstrable by obtaining a drop of blood by needle puncture of the skin. This blood is spread on a glass slide and stained with Wright's stain, methylene blue or Gram's stain.

Herrick<sup>3</sup> and Burton and Chalmers<sup>6</sup> emphasized the fact that the presence of a purpuric rash means fulminating meningococcemia. In the case reported by Burton and Chalmers, extensive purpura, associated with hematemesis and melena, was followed by the death of the patient nineteen hours after the onset of illness. A petechial rash means a less fulminating infection than does purpura.

The blood count shows from 15,000 to 60,000 leukocytes, with 90 per cent polymorphonuclears.

Miller<sup>7</sup> reported a case in a 2 week old child who had giant vesicles filled with cloudy fluid on the

abdomen, upper part of the right thigh and groin. Meningitis developed. Dr. Horace Bell has observed herpetic vesicles on an erythematous base in meningococcic infection. The characteristic location is the lips and the face, but the eruption may be anywhere. It is the most frequent eruption and is common in older children but rare in infants. Tillett and Brown<sup>8</sup> cited a case in which a confluent herpetic rash on the lips and inside the mouth preceded by several days the appearance of meningeal signs. A smear of fluid from a herpetic lesion may show meningococci. Herpes may appear at any time. The herpes accompanying meningitis must not be confused with herpes zoster. Herpes is rarely seen before the fifth day.

Positive blood cultures have been obtained in from 25 to 30 per cent of cases. If patients are seen early, in the stage of bacteremia, before the spinal fluid becomes cloudy or when the spinal fluid has been cloudy for a short time, a much higher percentage of positive blood cultures will be obtained. This explains the figures given by Herrick<sup>3</sup> who stated that as many as 80 per cent of blood cultures may be positive. This fact is made use of in the therapy at the Essex County Isolation Hospital, where serum is given intraspinally only, and not intravenously, when the spinal fluid is cloudy, because at this stage blood cultures are usually negative.

Certain characteristics of the spinal fluid should be studied when a meningococcic infection is present. The spinal fluid is usually hazy or cloudy. There is an increase in globulin. The sugar is diminished or absent. There is leukocytosis with polynucleosis. The meningococci may be demonstrated with a Gram stain as being either intracellular or extracellular. Very early and very rarely does the physician encounter a case in which he gets a clear spinal fluid. The explanation is obvious. The meningococci have not yet migrated from the blood stream to the spinal fluid. In a case of this kind, if one will wait from twelve to twenty-four hours and repeat the tap, a hazy spinal fluid will be obtained.

Tillett and Brown<sup>8</sup> in an analysis of twenty-six cases, mentioned a case in which meningococci were cultured from a spinal fluid which in other respects was normal. It was clear, with 2 cells per cubic millimeter. Serum was given intravenously and the patient recovered.

The meningococcus is the only organism that disappears quickly from the spinal fluid. Often it is difficult to find both by smear and by culture so that a clinical rule has been evolved whereby one is justified in giving antimeningococcus serum in any case in

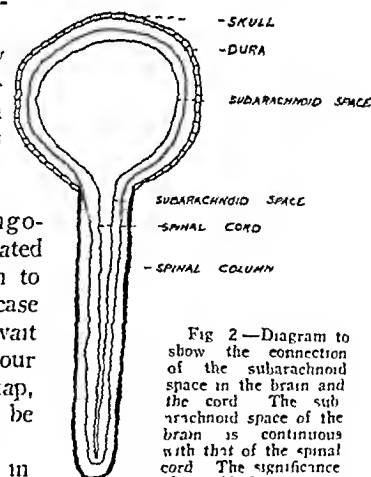


Fig. 2—Diagram to show the connection of the subarachnoid space in the brain and the spinal cord. The subarachnoid space of the brain is continuous with that of the spinal cord. The significance of a block at any given level is shown with the necessity of tapping at a higher level than the block in order to drain the spinal fluid. (Reproduced from figure 258 in Howell A Textbook of Physiology.)

3 Herrick W. W. Cerebrospinal Fever in Cecil R. L. and Kennedy Foster. A Textbook of Medicine Philadelphia W. B. Saunders Company 1927

4 Holt Emmett and McIntosh Rustin. Holt's Diseases of Infancy and Childhood ed. 10 New York & London D. Appleton & Co. 1933

5 Boone J. T. and Hall W. W. Meningococcus Septicemia with Report of Case Showing Organisms in the Direct Blood Smear. U. S. Nav. M. Bull. 33: 446-451 (Oct.) 1935

6 Burton A. G. and Chalmers D. K. Purpura as a Sole Sign in a Case of Meningococcus Septicemia. Lancet 1: 296-297 (Feb. 8) 1930

7 Miller D. J. M. A Case of Meningococcus Meningitis in the New Born with Interesting and Unusual Feature. Arch. Pediat. 24: 824 (Nov.) 1917

8 Tillett W. S. and Brown T. M. Epidemic Meningitis. Analysis of Twenty Six Cases. Twenty One of Which Occurred in the Spring of 1935. Bull. Johns Hopkins Hosp. 57: 297-316 (Nov.) 1935

which the spinal fluid is hazy or cloudy when the etiologic organism cannot be found. The diminution or absence of spinal fluid sugar is characteristic of a meningococcic infection. When the sugar content tends to return to normal the patient is on the road to recovery. One of the earliest signs that a recrudescence or relapse is about to manifest itself is the lowering of the sugar content of the spinal fluid when the patient is apparently well on the road to recovery. Herrick.<sup>3</sup>

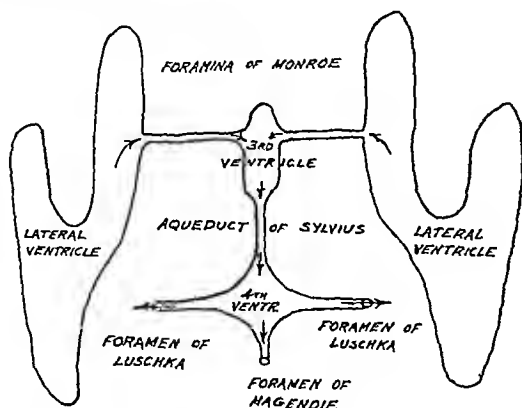


Fig. 3—Circulation of the cerebrospinal fluid. The arrows show the direction of the flow. (Reproduced from figure 260A in Howell, *A Textbook of Physiology*.)

stated that recrudescences and relapses occur in from 20 per cent to 30 per cent of the cases, so it is apparent that the quantitative estimation of spinal fluid sugar as a matter of routine is of definite clinical importance in the prognosis. In conjunction with this lowering of the sugar content of the spinal fluid in a recrudescence and relapse there are a return of the organisms to the spinal fluid and a reappearance of the hazy or cloudy appearance of the fluid.

It is often difficult to obtain fluid by spinal puncture from the new-born or young infant owing to the formation of a block in the narrow foramina or subarachnoid space by inflammatory exudate. The spinal fluid may coagulate in the needle. Cisternal punctures or ventricular punctures should be resorted to.

We are presenting case reports showing (1) the Waterhouse-Friderichsen syndrome, (2) the mental changes in patients with meningococcic meningitis, (3) mono-articular arthritis as the initial phase of cerebrospinal fever and (4) the difficulties encountered by the clinician in the diagnosis of meningococcic meningitis in infancy.

#### WATERHOUSE-FRIDERICHSEN SYNDROME

The Waterhouse-Friderichsen syndrome is really acute fulminating meningococcemia associated with adrenal hemorrhages. It cannot be distinguished clinically from fulminating meningococcemia, the finding of adrenal hemorrhages on postmortem examination serves as the differential diagnosis between the two conditions.

Four cases occurred in the Aldridge family.

CASE 1—Vivien A, aged 5 years, admitted April 7, 1936 for possible scarlet fever with pharyngitis had as chief complaints sore throat, abdominal pain, aching joints and fever. She did not appear acutely ill. The temperature was 104 F, the pulse rate 134 and the respiratory rate 30. The temperature dropped to 101.8 F the next day but subsequently rose to 104 and reached its peak of 104.8 three days after admission. Thereupon it dropped, and it stayed normal until the patient was dis-

charged April 29. The blood culture was reported positive for meningococci on April 10. The final diagnosis was meningococcic septicemia and acute pharyngitis.

CASE 2—Lawrence A, aged 2½ years, admitted on the same day as his sister, Vivien, appeared normal. The temperature, pulse and respirations were normal. There were no physical abnormalities. For three days the child's condition remained unchanged. On April 11 the temperature shot to 104.8 F. The patient looked toxic but the lungs were clear and there were no neurologic signs. Petechiae were seen over the elbow and the abdomen. A blood culture was positive for meningococci. Fourteen cubic centimeters of antimeningococcus serum was administered intravenously, but the child went into shock in spite of a negative sensitivity test. The next day petechiae appeared over the entire body and in the bulbar portion of the conjunctiva of the right eye. No Brudzinski sign or contralateral reflex was elicited, but there were questionable stiff neck and a questionable bilateral Kernig sign. Spinal tap showed a cloudy fluid (12,700 cells, with 97 per cent polymorphonuclears). Serum was given intraspinally. After a stormy course the child recovered, and he was discharged on May 9, after being at the hospital one month.

CASE 3—Bernard A, aged 1½ years, was admitted April 9, 1936, moribund, stuporous and cyanotic, with a temperature of 105 F. The parents did not notice that the child was sick until 3 a.m. the night before admission, when he appeared to have a fever.

Neurologic examination gave negative results except that it showed slight rigidity of the neck, a slight Kernig sign and no rash. The hemoglobin content was 59 per cent and a blood count revealed 4,200,000 red cells and 14,250 white cells with 54 per cent lymphocytes.

The patient died on the day of admission. Autopsy showed the classic appearances of the Waterhouse-Friderichsen syndrome.

The brain was characterized by acute encephalitis with pia-arachnoid edema. It was moderately wet, the gray matter throughout the cortex and the basal nuclei was pinkish and there was no meningeal exudate over the top of the brain. The pons, medulla, fourth ventricle and cerebellum were soft and pink, with no gross exudate. Meningococci were cultured from material obtained from the pia-arachnoid by inserting a swab made from a sterile platinum loop. Both adrenal glands showed medullary and cortical hemorrhages. Other pathologic changes were cloudy swelling of the liver, kidneys and heart and hyperplasia of the thymus.

McLean and Caffey<sup>1</sup> and other investigators have demonstrated that children having an enlarged thymus and a "status thymicolymphaticus constitution" are least resistant to the meningococcus organism.

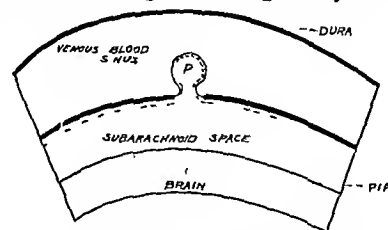


Fig. 4—Pacchionian bodies (arachnoid granulations). Since the subarachnoid space is a closed cavity filled with the cerebrospinal fluid which is secreted by the choroidal glands, some means of egress must be furnished for the fluid. This exit is provided by a system of filters called the Pacchionian bodies (P). (Reproduced from figure 260 in Howell, *A Textbook of Physiology*.)

CASE 4—Richard A, aged 3½ years, had a short history of illness and died at home. The postmortem appearances were the same as those of his brother Bernard (case 3).

Dr. Martland accepted in these cases a diagnosis of fulminating meningococcic meningitis with bilateral adrenal hemorrhages. It must be remembered that there is no gross exudate in the meninges. The infection is so fulminating that often the child dies in the septicemic stage with a clear spinal fluid and no meningeal signs.

CASE 5—A woman aged 42, was admitted in a comatose state shortly afterward.

Autopsy showed petechiae in the brain but no gross exudate of meningitis. Petechiae were present in the kidneys, intestine and heart, there was no endocarditis. Petechiae and hemorrhages were seen in both adrenal glands. The lungs showed no pneumonia. Meningococci were obtained from the pia-arachnoid by inserting a sterile platinum loop, thus establishing the diagnosis of the Waterhouse syndrome, which requires the finding of meningococci, hemorrhages in the adrenals and a fulminating infection, with death often occurring before a purulent meningeal exudate develops.

In some cases of this syndrome the resistance of the patient is strong enough to ward off death, permitting the invasion of the meninges, with the formation of a definite purulent meningeal exudate and cloudy fluid. An autopsy must be performed in these cases to establish the presence of adrenal hemorrhages. McLean and Caffey<sup>1</sup> said that the cause of early death is adrenal hemorrhage, which produces a clinical picture of marked prostration with intense cyanosis and shock.

In one of Aegerter's<sup>2</sup> patients, a 7 year old boy, the following pathologic changes were observed post mortem. Petechiae were present in the mucosa of the mouth, larynx, stomach, intestine and skin and hemorrhages from 1 to 3 mm in diameter throughout the peritoneum, pleura and pericardium, the adrenals were almost as large as the kidneys and were purple, the capsules were tense with blood, the brain was wet and heavy but showed no overt meningitis. Death had occurred nineteen hours after the initial symptom.

Only fifty-six cases had been reported in the literature up to May 1936. Examination of the spinal fluid gave relatively negative results, in only six cases did it demonstrate the presence of meningitis. The absence of a cloudiness of the spinal fluid was due to the fulminating nature of the disease and the quick death of the patient, who died before purulent meningitis occurred.

Treatment of the Waterhouse syndrome depends on early diagnosis with immediate intravenous use of meningococcus serum. The presence of adrenal hemorrhages and depletion of the sodium ion in the blood, with symptoms of adrenal failure (hypotension, weakness, low blood sugar content and circulatory collapse), suggest that adrenal cortex extract, dextrose given intravenously, epinephrine, fluids (saline solution given by vein) and transfusions be used.

#### THE CHANGE IN MENTALITY IN MENINGOCOCCIC MENINGITIS

CASE 6—David W., a Negro, aged 40, was drowsy, fell asleep when not disturbed, did not answer any questions put to him, resisted any attempt to examine him and refused to open his mouth. We had to have a man hold his head and another hold his hands so that we could pry his jaws apart to look into his mouth. He preferred to lie on his side with his legs drawn up. No matter how we shouted at him he refused to answer or cooperate. He was too weak to sit by himself. He had a boardlike rigidity of the neck. Bilateral Kernig and Brudzinski signs were elicited. His knee jerks were hyperactive. He resisted having his temperature taken. His pulse rate was 120 and his blood pressure 130 systolic and 70 diastolic. He resisted our looking at his pupils refusing to open his eyelids. His abdomen was soft. Spinal tap showed cloudy fluid with a cell count of 7,200, polymorphonuclears 60 per cent, globulin 4 plus and the sugar content diminished. Examination of a smear gave negative results, but culture showed meningococci.

This case illustrated well the loss of mentality, the septic adult brain became the brain of a 2 year old child who would not answer questions and resisted examination. Herrick<sup>3</sup> stated:

The patient is dull, apathetic, indifferent, he plaintively resents disturbance, responds in monosyllables with the expenditure of a minimum amount of energy, and prefers to lie on the side with knees drawn up and head bent forward. There is no modulation of voice or play of expression. Silence and immobility are striven for and active delirium or coma are infrequent. This striking deviation from the normal mentality at once arrests the attention of the experienced observer.

A 2 year old child with meningitis showed the mental state and hyperesthesia. She had marked rigidity of the neck, screamed in pain when handled or moved and when the stiffness of her neck was demonstrated. She remained quiet and asleep if not disturbed.

In Tillett and Brown's<sup>4</sup> series, almost all the twenty-six patients presented acute alterations in the mental faculties. The delirium present in fourteen either was short and transient or consisted of prolonged periods of violent purposeless activity. Generalized hyperesthesia was present in most of the patients. Hyperesthesia is present when there is a painful response to physical examination and nursing care. It produces excessive crying, resistance to examination and exaggerated reflexes and may be so intense that any movement of the body causes agonizing cries. The patient is greatly disturbed and cries lustily on hearing a loud noise or being exposed to a bright light. Ravid<sup>10</sup> described the crying as being incessant and brought about by the slightest touch, as though pain was evoked. The peculiar, intense, high pitched cry has been termed "the hydrocephalic cry of increased intracranial pressure."

Occasionally, as illustrated by Holt and McIntosh<sup>4</sup> there is at the beginning of meningococcic meningitis no loss of mentality whatever, the patient being mentally alert, as was demonstrated by the following case, which we observed at the Newark Salvation Army quarters:

CASE 7—Joseph D., aged 48, admitted with pain in the back of the neck and frontal headache of two days duration, had done no vomiting but was anorexic. The physical examination showed that he was mentally alert. He had a temperature of 102 F, his neck was very stiff, and bilateral Kernig and Brudzinski signs were elicited. The spinal fluid was cloudy, with 8,000 cells per cubic millimeter. This man was not disturbed mentally by the presence of meningitis. He was not drowsy, as was David W., who showed extreme drowsiness, but he also died.

CASE 8—Daniel R., a Negro aged 31, a chicken plucker by occupation had a history of chills and fever initiating the onset of illness. He was irrational and uncooperative and kept talking about plucking chickens. He reassembled and pecked at the bedclothes as though he were removing feathers from chickens maintaining an intermittent delirious chatter. The neck was very stiff. The pupils were dilated and did not react to light. The patient resisted examination and the mouth could not be opened. A spinal tap showed the presence of meningococci. meningitis the patient died.

CASE 9—Raymond B., a Negro aged 17 was delirious. He screamed loudly, was extremely excitable and kept repeating the words "mama pip" one two. He was irrational showed marked carphologia and resisted examination. There was boardlike rigidity of the neck and spinal tap showed the cloudy fluid of meningococcic meningitis. The patient recovered.

<sup>9</sup> Aegerter E. E. Waterhouse Friderichsen Syndrome. Review of the Literature and Report of Two Cases. J. A. M. A. 106: 1715-1719 (May 16) 1936.

<sup>10</sup> Ravid J. M. Meningococcic and Nonmeningococcic Meningitis in New Born and in Young Infants. Am. J. Child. 19: 128-129 (May 1933).

In conclusion, we may state that the foregoing case reports illustrate extreme drowsiness, delirium producing an irrelevant chatter, resistance to examination, inability to answer questions and hyperesthesia

#### MONO-ARTICULAR ARTHRITIS AS THE INITIAL MANIFESTATION OF MENINGOCOCCIC MENINGITIS

CASE 10—Jeanette P, aged 6 years, was admitted with a history of two days of pain in the right elbow. The tentative diagnosis was rheumatic arthritis of the right elbow or "observation meningitis." On the second day the temperature was 105 F. The patient was drowsy, complaining of headache, and had slight resistance of the neck but no real rigidity. Petechiae appeared. On the third day there were definite stiff neck and Kernig and Brudzinski signs. Spinal tap showed the cloudy fluid of meningococcic meningitis.

This case clearly shows some of the difficulties the clinician may experience in making an early diagnosis of meningitis. During the first two days of illness the child had a mono-articular involvement of the right elbow, with a fever and no neurologic signs pointing definitely to meningitis. When the petechiae appeared, on the second day, meningococcic bacteremia was suspected.

Carnot<sup>11</sup> mentioned a triad of manifestations of meningococcemia consisting of "intermittent fever, arthralgia, and a hemorrhagic eruption."

CASE 11—Robert H, a Negro, aged 5 years was admitted with pain and tenderness in the right knee. The knee was so tender that it could not be touched, but it did not appear swollen, he cried when it was moved. A tentative diagnosis of rheumatic arthritis of the right knee was made. The temperature was 101 F on the first day of illness. The next day severe headache and nonprojectile vomiting developed, but the right knee was not as tender as before. On the third day the child kept his head turned to the right and had classic meningeal signs. The temperature was 103 F. A spinal tap showed cloudy fluid with a cell count of 5,680 and 90 per cent polymorphonuclears, globulin 3 plus and sugar absent. A smear of spinal fluid showed meningococci. The patient recovered.

This boy had no meningeal signs the first two days of his illness, which means that one must be suspicious of meningitis when an illness is initiated by tenderness and pain in one joint followed by headache and vomiting.

Tillett and Brown described the syndrome of polyarthritides that occurred in nine of their twenty-six patients. The joints showed pain, swelling and signs of fluid. In six cases a joint was tapped and the fluid was thick, cloudy and rich in polymorphonuclears, in three cases meningococci were cultured from the fluid. Herrick<sup>3</sup> mentioned that acute arthralgia or polyarthritides is often an initial symptom and that an erroneous diagnosis of purpura rheumatica (Schonlein's purpura) may be made, owing to the combination of joint pain, tenderness and purpuric spots with no obvious meningeal signs. Indefinite pain in the joints, particularly in the knees, may mean meningococcemia, with meningitis developing from two to four weeks later. The knees are involved most frequently and the wrists next. Applebaum stated that chronic meningococcic septicemia may start with arthritic symptoms. In some cases the arthritis is present at the onset of the disease, while more frequently it appears as the meningitis is beginning to subside. There may be pain in the joints without any external evidence of inflam-

mation. Joints, the seat of meningococcic arthritis, usually completely recover, with no permanent disability.

#### MENINGITIS IN INFANCY

The following cases illustrate diagnostic criteria for meningitis in infancy.

CASE 12—A boy, aged 3 months, had a peculiar cry, nystagmus and bulging fontanel. The neck was not rigid and the Kernig sign was not elicited. There was a Brudzinski sign. The temperature was 104 F. Spinal tap yielded cloudy fluid from which meningococci were isolated.

The absence of rigidity of the neck and of Kernig's sign are characteristic of meningococcic meningitis at this age.

CASE 13—John Mc, aged 4 months, admitted with a temperature of 104 F and a purpuric and petechial rash over the legs, abdomen and chest, was drowsy and his eyes showed nystagmus with widely dilated pupils. The fontanel was not bulging. The neck was not rigid, and Kernig and Brudzinski signs were not elicited. A spinal tap showed 2,300 cells per cubic millimeter, most of which were polymorphonuclears, and a smear showed meningococci. The child died within twelve hours after the onset of symptoms. The condition was fulminating meningococcic meningitis.

#### DIAGNOSTIC CRITERIA FOR INFANTS AND FOR ADULTS

Josephine B. Neal<sup>12</sup> stated that in many infants meningitis starts as gastro-enteritis with vomiting, slimy green stools and a fever and with or without bulging of the fontanel, and that there are no signs of involvement of the central nervous system, such as Kernig's sign or stiff neck, early in the disease. The doctor who is not aware of this syndrome will treat the condition as gastro-enteritis, and the diagnosis will be made after ten days or two weeks of the disease, when the stiff neck and Kernig sign appear. By this time the disease is far advanced. It should be remembered that meningitis may be present in the first and second years of life when bulging of the fontanel is associated with an irregular fever higher than one would expect from gastro-enteritis and when gastro-enteritis is not responding to the ordinary methods of treatment. Ravid<sup>10</sup> has reported a series of cases in infants in which constipation, vomiting and abdominal pain marked the onset of a meningococcic infection and so obscured the clinical picture that an initial diagnosis of an acute condition within the abdomen, such as intussusception or pyloric stenosis, was made. Abdominal cramps were prominent. There may be bloody stools in cases of the gastro-enteritis accompanying a meningococcic infection, but this symptom is rare. The vomiting is usually nonprojectile, being in infants a regurgitation.

It must be noted that an infection of the upper respiratory tract often precedes meningitis in infancy and that "grip" or an "influenzal" infection at times precedes the meningeal signs in adults. Josephine B. Neal expressed the opinion that this infection or influenza is caused not by the meningococcus but by other organisms, which reduce the resistance of the patient to such an extent that the body succumbs to a superimposed meningococcic infection.

The bulging of the fontanel is a very important sign. It is usually termed a "lump on the head" by the mother. It is an indication that the ventricles are distended with spinal fluid. The examiner should put

11 Carnot Paul. *Rev. gen. de clin. et de therap.* 46: 97 (Feb. 13) 1932.

12 Neal Josephine B. *Experience of the Meningitis Division of New York Department of Health.* *Am. J. Pub. Health* 21: 147-162, 1931.

the infant in a sitting position to determine whether the fontanel bulges, as when the child is supine the state of the fontanel may be deceiving.

The absence of bulging of the fontanel does not rule out meningitis, as the cranial sutures in infancy are elastic. The increased intracranial pressure may merely serve to separate the cranial bones, without producing a bulging of the fontanel. When the child cries he tends to produce the condition.

If the baby has a petechial rash or a swelling of a joint, one must rule out a meningococcic invasion of the blood stream. The presence of herpes with a fever of obscure origin may mean meningococcemia.

Fretfulness, refusal to nurse or restlessness may herald meningitis. The bright child loses his vivacity. He may be irritable at all times or only when disturbed for examination or feeding. He may be stuporous and difficult to arouse but when he is aroused may manifest irritability.

The patient suffers from acute pain and may complain of generalized soreness. The pain is usually situated in the frontal and occipital regions of the head.

*Statistics on Meningococcic Meningitis in Newark, N. J.\**

Year	Number of Cases	Number of Deaths	Mortality Percentage
1918	102	43	44.1
1919	42	22	52.4
1920	29	16	55.2
1921	23	11	47.8
1922	26	16	61.5
1923	20	15	75.0
1924	18	10	55.6
1925	12	5	41.7
1926	16	4	25.0
1927	15	8	53.3
1928	36	14	38.9
1929	66	26	39.4
1930	53	16	30.2
1931	32	9	28.1
1932	10	4	40.0
1933	10	3	30.0
1934	7	2	28.6
1935	8	3	37.5
1936	47	22	46.8
Total number (19 years)	572	234	41.4

\* Two striking phenomena about an epidemic are the low morbidity and the high mortality as contrasted with those for other contagious diseases.

but may involve also the lower extremities, back or abdomen. It varies in severity throughout the day, being worse at night. When one attempts to flex the neck, an intense cry due to pain in the occipital region is elicited.

The presence of exaggerated tendon reflexes in a quiet or somnolent patient who is acutely ill or febrile may mean meningitis. Normal infants, excited by the manipulation of examiners and strangers, often show hyperactive reflexes, so these signs must be used in conjunction with other objective phenomena pointing to a cerebral irritation. The deep reflexes may be normal, diminished or exaggerated, no uniform variability being present. The superficial reflexes are of no value. Fever, hyperesthesia and increased reflexes may be the only early signs.

The Kernig sign is very important in the diagnosis of meningitis in adults. It is found in a considerable number of normal infants and may not occur in infants who have cerebrospinal fever. Its absence should not lead one to exclude meningitis, its presence should make one look for other signs.

The Brudzinski sign is important in adults, but it is found in many normal infants. Its presence does not have any significance unless associated with other signs of meningitis.

Tonic spasm of various muscular groups is a constant sign, which, although it does not occur early, is always present during the course of meningitis. Tonic muscle spasm gives rise to the stiff neck, Kernig's sign, Brudzinski sign and cervical and general opisthotonos. Tonic spasm of the upper and lower extremities causes flexion of the arms, legs and thighs, to which the term "gun hammer" has been applied. The extremities may be held in extension. Stiffness of the neck may, as shown by Eagleton, be intermittent. Risus sardonicus and trismus have been reported.

A Babinski sign is present normally during infancy and is not characteristic of meningitis. Ravid<sup>10</sup> said that distention of the veins of the neck is a valuable sign. The tache cerebrale is very marked, as in all forms of meningitis.

The onset of a meningococcic infection is usually attended by a moderate or high fever, with a normal or slightly increased respiratory rate. The temperature curve is irregular, the fever having periods of remission or exacerbation. In a remission, the temperature falls to normal, or nearly normal and remains there for several days. When the patient is seen in this period the condition may be difficult to diagnose. Afebrile period may occur at the beginning of a meningococcic infection and further contribute toward hiding the presence of a febrile illness, fortunately, this occurrence is rare. Some patients never show much fever. According to Herrick,<sup>3</sup> prolongation of fever beyond the seventh day suggests that treatment is inefficient. At that time complications and serum sickness are additional causes for prolongation of the fever. There is nothing characteristic about the relationship between the pulse rate and the temperature. The pulse is usually more rapid than normal, and it is subject to sudden changes in rate, as the intracranial pressure rises a relatively slow rate may appear, and if there is general debility the pulse will be rapid. One does not see the rapid respirations that a patient with pneumonia has. The combination of rapid respirations and meningeal signs usually means pneumonia with meningismus.

Macewen's sign is of no value except when there is distention of one ventricle, when a slightly tympanic cracked-pot percussion note is elicited over the distended ventricle. This sign is rarely used.

A convulsion in a baby may mean meningitis. It is of no special diagnostic significance, since any febrile disturbance in infancy may produce a convulsion. Instead of a generalized convulsion, localized intermittent tremors and twitchings of an extremity or of one side of the face may occur. The picture may be identical with that of tetany or intracranial hemorrhage in the infant. The combination of convulsions, a hemorrhagic eruption and cyanosis may mean fulminating meningococcemia.

Careful observation of the eyes of a febrile infant may enable one to detect meningitis. One should watch for nystagmus, which occurs early. Nystagmus may occur only on attempted flexion of the head. The ocular movements may be slower than in true nystagmus and involve one eyeball only. If both eyeballs are involved, their movements show dissociation. Strabismus may be present. At times there is ptosis. Retraction of the upper eyelids may be noted. The pupils are



usually contracted early in the disease. Later they may be fixed, dilated or unequal and not respond to the light reflex. The child may appear sightless and have a peculiar stare. Hippus may be present. Ravid<sup>10</sup> stated that purulent conjunctivitis may be the first sign to usher in the disease, but it is usually diagnosed as being of gonorrheal origin, the true aspect manifesting itself only several days afterward. Choked disk may be present, but it is not a frequent or a constant symptom. The papilledema, when it does develop, is due to an internal hydrocephalus. Choking of the disk is therefore a complication and not an early sign in meningitis. The eyegrounds are normal early in the disease and are of no aid in making an early diagnosis.

There is no evidence early in this syndrome of any weakness of the extremities, such as occurs in poliomyelitis. Partial or complete paralysis of an extremity constitutes a complication and occurs late in the course of cerebrospinal fever.

#### SUMMARY

A thorough knowledge of the bacteriology, anatomy and physiology of the meninges and the cerebrospinal fluid is essential for the proper early diagnosis and treatment of meningococcic infections.

Meningococcic infections have a low incidence and a high mortality. In the city of Newark during the past nineteen years there were 572 cases, with a mortality of 44.4 per cent.

A petechial or purpuric rash may be considered the specific rash of meningococcemia. A purpuric rash accompanies the petechial rash when the condition is fulminating. The rash occurs before the spinal fluid becomes cloudy and before the onset of meningeal signs and persists after definite meningeal signs appear. In many cases meningococci can be demonstrated by a Gram stain of blood obtained by needle puncture of a petechial or purpuric area. A Wright stain of blood from a nonpurpuric skin may also demonstrate meningococci.

Acute fulminating meningococcemia associated with adrenal hemorrhages has been termed the Waterhouse-Friderichsen syndrome.

A meningococcic infection attacked four children in one family, with recovery of two and death of the other two, and postmortem examination revealed the typical pathologic changes in the Waterhouse-Friderichsen syndrome. Cases 3 and 4 of this group illustrate the quick death of the patient, within twenty-four to thirty-six hours after the onset of symptoms. Negative tests of the spinal fluid have been reported in a majority of similar cases.

Three of the cases reported illustrate toxic encephalitis secondary to meningococcic meningitis, in such cases striking deviations from the normal mentality attract the attention of the experienced observer.

Two patients had initial complaints of pain and tenderness in one joint, necessitating a tentative diagnosis of mono-articular arthritis. The stiff neck and Kernig sign did not appear until two days after the onset of arthritic symptoms.

In infancy, particularly in the first and second years of life, the early signs of meningococcic infection of the meninges do not point to involvement of the central nervous system. They are more likely to suggest an infection of the upper respiratory tract or a gastrointestinal disturbance. After the disease is well established, the stiff neck, the Kernig and Brudzinski signs and other meningeal signs appear.

## VASCULAR ACCIDENTS OF THE EXTREMITIES

GÉZA DE TAKÁTS, M.D.

CHICAGO

The term vascular accident has not been used in relation to the extremities. It implies, however, that a sudden unexpected change takes place in circulation in the form of hemorrhage, embolism or thrombosis. It also means that emergency measures have to be adopted, the promptness of which may save the limb or the life of the patient. In this brief discussion I plan to outline the types of vascular accidents which occur in the arterial and venous system of the extremities, together with their immediate and delayed treatment.

The general practitioner knows of the accident first in the overwhelming percentage of cases, early recognition and early simple measures may be deciding factors in the ultimate outcome of the emergency.

#### ARTERIAL HEMORRHAGE

A clean division of an artery, as contrasted with a blunt crushing injury, is more apt to lead to hemorrhage, since arterial contraction is less effective and blood-clotting substances less abundant in the clean cuts of the arterial wall.<sup>1</sup> Gunshot wounds, stab wounds or fragments of fractured bone are the most frequent causes of massive arterial hemorrhage. If the hemorrhage is external, pouring through a break in the skin, digital compression or constriction above the injury will have to stop the bleeding. However, if bleeding takes place in the soft tissues, with formation of a large hematoma, such bleeding can arrest itself when the pressure of the extravasated blood becomes equal to the pressure within the artery. Such a hemorrhage will frequently result in the occlusion of the vessel except when an aneurysm or a so-called pulsating hematoma develops.<sup>1a</sup>

Severe trauma to large vessels, then, may result in hemorrhage, thrombosis or aneurysm, but in any case the signs and symptoms of vascular impairment must be looked for. Subjectively, numbness, tingling and pain in the bloodless area are the complaints. Motor paralysis is sometimes the first symptom. Objectively, pallor, cyanosis, a drop in the temperature of the skin and loss of pulsation are observed. If nothing is done or nothing can be done to relieve the vascular occlusion, gangrene develops in a certain percentage of cases. An important condition often unrecognized frequently occurs after trauma in the neighborhood of a vessel. A traumatic vessel spasm may so contract a contused artery that it closes completely and organic closure is simulated.<sup>2</sup> The spasm is occasionally indistinguishable from an actual closure of the vessel, and, even if the vessel is closed by a clot, a certain amount of spasm is always present in the collaterals. This is important, as it necessitates special measures to overcome this part of the vascular accident.

Obviously, bleeding must be stopped. Bleeding from a middle-sized or large artery cannot be stopped by

From the Department of Surgery, University of Illinois College of Medicine and St. Luke's Hospital.

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1. de Takáts, Géza. Trauma and Peripheral Vascular Disease. In Brahdý, Leopold, and Kahn, Samuel. Trauma and Disease. Philadelphia: Lea & Febiger, 1937.

1a. No attempt will be made to discuss the surgical treatment of aneurysms. They should not be attacked surgically for several weeks or months after the injury.

2. Montgomery, A. H., and Ireland, Jay. Traumatic Segmental Arterial Spasm. J. A. M. A. 105: 1741 (Nov. 30) 1935.

packmg Temporary constriction, which should not last longer than from one-half hour to an hour, must be followed by ligation or suture. Ligation of a larger artery must be undertaken with the understanding that, dependent on the site, gangrene follows in a certain percentage of cases. In figure 1 the underlined numbers represent the percentage of gangrene following ligation of the artery at the site indicated, based on the collective statistics of Heudrich. It will be noted that ligation on the upper extremity is much less dangerous and that the risk of gangrene for ligation on the lower extremity is 100 per cent for the aortic and for the common iliac artery, 13 per cent for the external iliac artery, 21 per cent for the common femoral artery, 37 per cent for the popliteal artery and none for the posterior tibial artery.

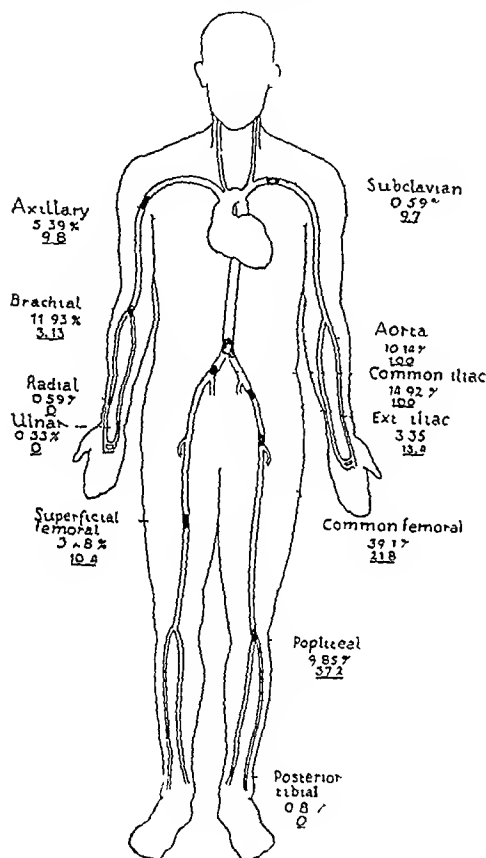


Fig. 1.—Diagram of peripheral arterial occlusions at typical sites. The first figure indicates the incidence of emboli calculated from the collective statistics of Pearse.<sup>4</sup> The figure below it underlined represents the percentage of gangrene following ligation of the artery based on the collective review of Heudrich (cited by de Takáts).<sup>5</sup> Obviously, an embolus produces far more embarrassment of circulation than a simple aseptic ligation. However, the underlined figures give a fair idea concerning the danger that gangrene will follow at a given site.

These are of course only average figures, but they give a fair indication of the risk of tying a large artery. To minimize the erosion of the vessel wall by the ligation or by accompanying infection, the vessel should be doubly ligated and severed. The stumps are then transfixed with a suture ligature, to ensure against slipping. If the distal stump shows pulsation, collateral circulation is abundant. If not, it is wise to tie the concomitant vein, as the increased venous pressure aids circulation temporarily and may tide the limb over the critical period.<sup>3</sup> An extremity whose large artery

is ligated needs further care, even if it does not become gangrenous. It is cold, numb and pulseless, the muscles become atrophic, contractures of muscles and tendons may develop, and ischemic neuritis sets in. As soon as the injury is healed all measures known to increase collateral circulation must be employed. These will be discussed later, together with the general therapy of arterial occlusions.

When equipment and previous training enable the surgeon to attempt a suture of the artery, the suture will yield far superior results than ligation. Nobody can have enough opportunity in civilian practice to perfect himself in the technic of arterial sutures, but I would suggest to the younger men that they study it on the experimental animal. Suitable needles and suture material can be kept on hand in ampules. The technic of arterial sutures can be learned by any one who can undertake to suture an injured or perforated bowel, and yet sutures are not done as often as they should be.

#### ARTERIAL EMBOLISM

When an artery of the extremity is suddenly occluded by a clot which has been thrown off from the heart or from a vessel proximal to the obstruction one speaks of an arterial embolus. The sources of such emboli are shown in table 1. The main source of the left side of the heart, the mitral stenosis of rheumatic heart and the myocardial infarct following coronary thrombosis are the two most frequent types of heart disease which are complicated by peripheral embolism. Rarely, a thrombus may break loose from the field of operation and produce an embolus toward the periphery. Figure 1 shows the incidence of emboli at various segments of the arterial tree. The symptoms of sudden arterial occlusion are variable and multiple. The classic description is that of a sudden excruciating pain at the site of the embolus in a patient suffering from heart disease, simultaneously the affected extremity becomes paralyzed, cold and pale, and the pulses disappear. Within a few days the skin becomes mottled, then diffusely cyanotic or gangrenous.

According to my experience pain is not always a prominent symptom, at least not at first, numbness and tingling or motor paralysis may precede the pain by several hours. Furthermore the pain is not due to an impact of the clot against the vessel wall, but, as Sir Thomas Lewis<sup>4</sup> pointed out, is due to ischemia of the musculature. In some of my cases pain has been entirely absent.

Arterial thrombosis, in contrast, usually comes on gradually. There is often some preexisting evidence of peripheral arterial lesions such as arteriosclerosis or Buerger's disease, and there is no obvious source of embolism in the heart. Yet it must be emphasized that the differential diagnosis between arterial embolism and thrombosis is sometimes difficult and occasionally impossible.<sup>5</sup> Thus, it has been noticed by several observers that arterial embolism is sometimes not as sudden as the textbooks would have it and that numbness, coldness and tingling may appear days and weeks before the fulminating symptoms. The former are probably due to preliminary showers of the central clot, which is about to break loose. On the other hand arterial thrombosis, which usually has a gradual onset may occur so suddenly that it is the first recognized

3 Brooks Barney, Johnson G S and Kerthev J A Jr. Simultaneous Vein Ligation. An Experimental Study of Effect of Ligation of Concomitant Vein on Incidence of Gangrene Following Arterial Obstruction. Surg Gynec & Obst 59:496 (Sept.) 1934.

4 Lewis Thomas. Pain as an Early Symptom of Arterial Embolism and Its Causation. Clin Sc 2:237 (July) 1936.

5 de Takáts Geza. Acute Arterial Occlusion of the Extremities. Am J Surg 33:60 (July) 1936.

symptom of a widespread arterial disease. One sees occasionally popliteal thrombosis in an elderly arteriosclerotic patient or in a juvenile thrombo-angitic patient which may be mistaken for embolism. The differential diagnosis between arterial embolism and thrombosis has more than academic interest.

In spite of all that has been said recently of various conservative measures to increase circulation when an embolus occludes an artery, the extraction of the clot

TABLE 1—*The Source of Peripheral Emboli in 296 Cases (Pearse<sup>7</sup>)*

	Percentage
Heart disease	69.2
Postoperative states	13.0
Infection and trauma	2.1
Arteriosclerosis	2.1
Aneurysm	1.8
Abortion and delivery	1.8
Miscellaneous	2.8
Phlebitis	0.3

is still the optimal method of treatment. In order to define the indications for an embolectomy, it is well to examine the factors which determine the ultimate fate of a limb affected by acute arterial occlusion. They may be readily grouped under four headings: (1) the condition of the heart, (2) the condition of the vessel wall at the site of obstruction, (3) the condition of the collateral vascular bed and (4) the time elapsed between the early symptoms and effective treatment. Of these four factors, the condition of the heart and of the vessel wall cannot be influenced. There is in fact a danger of aggravating circulation by overanxious digitalization. I have repeatedly learned from our medical staff at St. Luke's Hospital that patients who are indiscriminately digitalized after coronary occlusion are more apt to throw peripheral emboli. Digitalis in the treatment of coronary occlusion is indicated only in the presence of decompensation, it slightly constricts the coronaries and increases muscular contractions. The last two patients with multiple embolism whom I saw were both heavily digitalized after coronary thrombosis.

One can, however, influence the time factor and the state of the collateral vascular bed. In regard to the time factor, the statistics of the Swedish surgeons provide a model example. Key's collective review shows that the medical profession in Sweden has become conscious of the utmost urgency of the situation. Of 213 embolectomies, 135, that is, 63 per cent, were performed within the first ten hours.<sup>6</sup> What that means in regard to results is shown in table 2.<sup>7</sup> In this country Herrmann's<sup>8</sup> latest figures show that of twenty-one patients with acute embolism ten could be treated within the first twelve hours and that of twenty-five patients with thrombosis six, or 30 per cent, were referred for treatment within twelve hours. My material, consisting of a total of fifty patients suffering from sudden arterial occlusion, contains fifteen patients who had arterial embolism, in only five of these could exploration be done, and only two arrived within less than ten hours. It seems that those of us who teach surgery in medical schools have not done our duty to

impress the medical profession with the utmost urgency of acute arterial occlusion. The general attitude is that the leg will become gangrenous and the patient will die anyway.

It might be well to state what can be accomplished when the patient is seen in the first ten hours. First one must make an attempt to differentiate between embolism and thrombosis, keeping in mind the possibility of venous thrombosis with arterial spasm, which will be discussed a little later. Then one must try to localize the site of occlusion and determine, on the basis of the patient's age, cardiovascular status and the available collateral bed, whether or not gangrene is to be expected. Gangrene seldom follows an embolus to the upper extremity, and while embolectomies on the upper extremity are uniformly successful, they are unnecessary, for one can get along without them.

Thirdly, intensive conservative measures must be adopted to open up the entire collateral bed and produce as much peripheral vasodilatation as possible. These measures are available to every practitioner, and I have seen limbs saved by a systematic use of peripheral vasodilators. A large heat cradle must be placed over both lower extremities and the abdomen,<sup>9</sup> it can be improvised in any home. The temperature in the cradle need not exceed 90° F. The use of excessive heat to the extremity is harmful, as heat creates an increased demand for oxygen, and that accentuates the arterial deficiency. The limb should not be elevated, as it commonly is, because elevation only decreases arterial inflow, on the contrary, it should be in a dependent position, somewhere between 10 and 15 degrees below the horizontal position. The angle must be so selected that the tips of the extremity regain their normal color.<sup>10</sup> They should be neither pale from too much elevation nor dusky red from too much dependence. Next an intravenous injection of a potent vasodilator is given. Papaverine hydrochloride in one-half gram (0.03 Gm.) doses<sup>11</sup> or sodium nitrite in 1 gram (0.06 Gm.) doses is kept on hand, dissolved in a few cubic centimeters of physiologic solution of

TABLE 2—*Results of Embolectomy (Pearse<sup>7</sup>)*

	Percentage Successful *
First ten hours	40
Second ten hours	14
Third ten hours	8
No successful operations after forty eight hours	

\* Success is defined as restoration of circulation for at least one month.

sodium chloride or distilled water and boiled in a spoon over a flame just before use. These doses have been so selected that, while the general blood pressure is affected little or not at all,<sup>12</sup> an enlargement of the vascular bed, chiefly the venocapillary part, takes place. This aids circulation and overcomes the initial vasoconstriction, which accompanies all acute vascular occlusions. Obviously the heat and the vasodilators are not going to influence the clot, but they do open up the collateral arterial pathways, which, curiously enough, are in a state of spasm. This spasm is due

9 Lehman E. P. A Suggestion for Simple Treatment of Acute Arterial Spasm. *Am J M Sc* 190: 459 (Oct.) 1935.

10 Reid M. R. The General Care of Peripheral Vascular Diseases. *Ann Surg* 96: 733 (Oct.) 1932.

11 de Takáts Geza. The Use of Papaverine in Acute Arterial Occlusions. *J A M A* 106: 1003 (March 21) 1936.

12 Beck W. C. and de Takáts Geza. The Use of Sodium Nitrite for Testing the Flexibility of the Peripheral Vascular Bed. *Am Heart J* 15: 158 (Feb.) 1938.

6 Key E. Die Emboleoperationen auf Grund der bisherigen Erfahrungen. *Ergebn d Chir u Orthop* 22: 1 1929.

7 Pearse J. E. Jr. Embolectomy for Arterial Embolism of the Extremities. *Ann Surg* 95: 17 (July) 1933.

8 Herrmann L. G. Experiences with the Conservative Management of Acute Arterial Occlusion. Read before American Heart Association Atlantic City N. J. June 7 1937.



partly to fear, pain or shock, following the embolism, but is specially pronounced in the affected extremity as a reflectoric vessel spasm.<sup>5</sup>

When a negative and positive pressure apparatus is available, it also can be applied to the affected extremity. According to my experience, however, these machines are far more helpful at a later stage, when a slow and gradual enlargement of the collateral vascular bed is desirable. In the treatment of acute obstruction, their use has specially been urged by Herrmann,<sup>8</sup> but he said that they act in overcoming the vessel spasm, which may easily be overcome by heat and drugs. Intermittent venous hyperemia has also been found to be useful in the treatment of the late sequelae of acute occlusions.<sup>13</sup>

In a large number of cases, the aforementioned simple measures suffice and the limb regains its normal color and temperature. If this does not happen within an hour after the administration of vasodilators, the limb is headed slowly or rapidly toward gangrene. In communities where the physicians are awake to the great seriousness and urgency of this vascular accident, early treatment may save a number of lives and limbs.

In the small group of cases in which early conservative measures have not brought about an improvement in circulation but in which, on the other hand, the limb is not yet ready for amputation, embolectomy should be attempted. That the results are poor after the first ten hours has already been stated, yet one may save a limb occasionally after twenty-four hours. The reason for the great hurry in removing the clot is not only that muscle and nerve tissue, deprived of arterial blood, will suffer permanent damage but that the obstructing clot continues to grow, chiefly in the form of a descending thrombus, which plugs up collateral vessels and defies the purpose of the late embolectomy. In addition the vessel wall starts a reactive process against the clot and becomes irritated, and when such a vessel wall is sutured thrombosis readily occurs at the suture line.

The embolectomy itself is not difficult when suitable equipment and team work are present. Most frequently the groin and the popliteal fossa are explored with the patient under local anesthesia. Nystrom<sup>14</sup> has shown that clots in the aorta or the common iliac artery may be approached from an incision at the groin and with subperitoneal massage can be brought out through an incision in the femoral artery.

Embolectomy is futile after forty-eight hours or even before that when there is manifest gangrene or when the underlying disease is apt to be fatal within a short time, as are septic endocarditis and terminal cardiac decompensation. It is seldom indicated in the upper extremity.

Recently the impression has gained ground that early conservative measures will make embolectomies unnecessary. The answer to this problem can be found by examining the fate of limbs after embolectomy and after conservative measures. About one half of the patients who have a successful embolectomy within the first ten hours and do not die of the underlying cardiac disease leave the hospital with restored circulation. Strombeck,<sup>15</sup> who published some late results, found that, of such patients, three fourths were alive after one year, half after three years, one

third after five years and one eighth after ten years. These are encouraging figures when one realizes how severely handicapped these patients are. Much less is known about the circulation of the extremity that has survived the acute vascular occlusion without gangrene and without embolectomy. I have under observation five patients with such an extremity. In each case it is pulseless and atrophic, the muscles contracted and fibrosed and the skin scaly and mottled. The leg is very painful because of ischemic neuritis, and severe intermittent claudication is present. If there is a demonstrable vessel spasm, the fibrosed artery may be excised or lumbar sympathectomy done to break up the reflex vasoconstriction. While the limb may slowly improve in function, it does not compare with the one from which a clot has been successfully extracted.

When the patient arrives after forty-eight hours, an amputation should not be delayed if there is any chance of saving his life. It takes considerable courage and optimism to urge amputation. The mortality under these conditions is around 50 per cent. I have two patients who have lived over two years after amputation. In each case the leg had to be amputated because of acute arterial occlusion, and the patients bear eloquent testimony as to the value of not giving up the fight too soon. Naturally, moribund patients should not be subjected to any further ordeal.

Mention should be made of multiple peripheral emboli. When they pass from one extremity to another or to the brain, heart, kidney or intestine, the fight has been lost. It must be emphatically stated, however, to physicians who are skeptical of all therapeutic efforts in the treatment of embolism, that the majority of emboli are single for many months, at least, and that patients may lead a useful although physically limited life for many years. Two patients of mine do their own housework, one woman lived for several years and died of multiple sclerosis, one man, who had a cerebral and two peripheral emboli after a myocardial infarct, lives after two years and is capable of moderate activity.

#### ARTERIAL THROMBOSIS

It has already been mentioned that, although often easily differentiated, thrombosis occasionally is indistinguishable from embolism. Arterial thrombosis may result from mechanical causes, such as pressure from a crutch or a cervical rib, from burns and from frost bites, it may occur during the course of infectious diseases, such as pneumonia, typhoid fever and typhus, and in association with Buerger's disease or arteriosclerosis. With the latter two diseases it may produce the first clinical symptom and appear so suddenly that one is easily led to think of an embolus. Of course all the measures previously outlined for the treatment of acute arterial occlusions, except embolectomy, must be employed. The suture of a vessel which is the site of local thrombosis must invariably lead to renewed thrombus formation. There is, however, another surgical procedure which often improves circulation, that is, excision of the thrombosed vessel. The thrombosed vessel, just like the one which harbors an embolus, maintains a continuous reflectoric vessel spasm, which is responsible for the coldness, numbness, cyanosis and pain of the affected extremity.

While Leriche<sup>16</sup> has advocated excision in the treatment of Buerger's disease and of arteriosclerosis, I feel

<sup>13</sup> de Takats, Geza, Hick, F. K. and Coulter, J. S. Intermittent Venous Hyperemia in the Treatment of Peripheral Vascular Disease. *J. A. M. A.* 108: 1951 (June 5) 1937.

<sup>14</sup> Nystrom, Gunnar. Lectures on Embolism and Other Surgical Subjects. Baltimore: Williams & Wilkins Company, 1936.

<sup>15</sup> Strombeck, cited by Nystrom.<sup>14</sup>

<sup>16</sup> Leriche, René, Fontaine, René and Dupertuis, S. M. Arteriotomy with Follow Up Studies on Seventy Eight Operations. *Surg. Gyne. & Obst.* 64: 149 (Feb. 1) 1937.

that its use is limited to short, well localized segmental clots following trauma or infection. I have recently seen in consultation a young lad who, in falling from a horse on a sharp object, cut his femoral artery, which had to be tied because of massive hemorrhage. Several months later, when admitted to the Research and Educational Hospital, he had a lot of cyanosis and coldness and had lost a few toes. It could easily be demonstrated with the help of sodium nitrite that some of his circulatory impairment was on a vasospastic basis. As the femoral pulse was well palpable in the groin, the arterial segment to be excised was readily demarcated and its removal advised.

Another confusing picture is that of multiple arterial thromboses, which just because of their multiplicity, simulate embolism. It has been suggested that the clotting mechanism is at fault, although the etiology is entirely obscure.<sup>17</sup> Periarteritis nodosa may also give rise to acute arterial occlusion and may easily be due to an allergic manifestation of a chronic vascular infection. A patient with multiple sclerosis had arterial thrombosis in the popliteal fossa which resulted in gangrene and amputation. This is interesting in the light of the recent work of Putnam<sup>18</sup> on the etiology of multiple sclerosis.

#### VENOUS HEMORRHAGE

Aside from those caused by accidental venous puncture, the majority of venous hemorrhages result from previously existing large varicose veins. Patients with large, thin-walled varicose veins are often afraid of this complication, and yet, although the fact is rather amazing, few of these varices ever produce external hemorrhage. The reason is that usually by the time the skin is thinned out and ready to burst, local periphlebitis has formed around the vein, which thickens the wall or may produce thromboses. The varicose vein which is apt to bleed is uninfected and thin walled and shines through the parchment-like skin like a small blue marble. When one recognizes such a vein before or even after it has bled, it is wise to inject it with a mild sclerosing solution, such as a 5 per cent solution of potassium or sodium oleate, and thus prevent hemorrhage.

Loss of blood from a ruptured varix may be considerable, and I have seen a few exsanguinated patients. Usually, well meaning first aid experts put a tourniquet above the bleeding point, which is unnecessary and if not tight enough will only increase venous bleeding. It is enough to elevate the leg high on pillows and apply an even, snug bandage from the toes to above the point of bleeding, in order to control oozing. Secondary infection or ulcer formation rarely follows such an event because the surrounding skin is normal and will readily heal. Some patients with congenital vascular anomalies, such as arteriovenous fistulas or aneurysms, frequently bleed from small, pinpoint military aneurysms in the skin. For these, roentgen therapy or radium offers a good protection against further hemorrhages.

#### VENOUS THROMBOSIS

The clotting of blood in the veins is a true vascular accident, as it comes on unexpectedly and with symptoms alarming to the patient. On the upper extremity

venous thromboses are comparatively rare. There are, however, two typical forms of thromboses in the upper extremities, the first is ascending thrombosis of the cephalic or the basilic vein following the introduction of irritating substances, such as hypertonic salt solution, dextrose or dyes, or blood transfusions. The treatment is rest, elevation and hot fomentations. A breaking loose of the thrombus hardly ever occurs.

Another infrequent but characteristic type of thrombosis is that of the axillary or the subclavian vein. This may be of traumatic origin, following pressure on crutches in the armpits, fractures or dislocations of the humerus, or extirpation of axillary lymph nodes requiring extensive dissection around the skin. A typical but rare picture is subclavian thrombosis following prolonged muscular strain during which the vein is compressed between the costocoracoid fascia, the subclavius muscle and the bony chest wall.<sup>19</sup> The diagnosis of such venous obstruction can be made by the history of a sudden strain followed by swelling and cyanosis, the development of collateral veins and sometimes a palpable clot in the axilla or under the pectoral muscle. The stripping or the excision of the thrombosed segment hastens the development of collaterals. In one of my cases, stripping of the axillary vein hastened the disappearance of edema and abolished some vasomotor phenomena, such as flushing and a burning pain brought on by exercise.<sup>20</sup>

By far the overwhelming majority of venous thromboses occur in the lower extremities. It is convenient to separate them into four groups.

First, the superficial but not varicose vein may be affected. Spontaneous thrombosis of the normal saphenous veins occurs mostly in males. It produces visible and palpable streaks along the inflamed vessel but usually little change in pulse and temperature. The phlebitis may be tubular and ascending or occur in round or oval patches, jumping intact segments of the vein. There is little, if any, swelling of the calf or ankle. The natural course of the disease is slow regression and frequent recurrence. In the majority of cases, typical Buerger's disease later develops, with involvement of the arteries. Other types of segmental phlebitis, which may migrate to the neck, arms or face, include streptococcic, rheumatic and tuberculous forms, but I have seldom seen them.

The second form is thrombosis in varicose veins, which exhibits essentially the same symptoms. There may be, however, much more redness and swelling, and the size of the clots may approach the size of a walnut or even a tangerine. Because of the width of the saphenous vein, massive thrombosis may ascend rapidly from hour to hour toward the groin. In the patchy type of phlebitis, large areas of periphlebitic edema and induration develop, which are painful to the touch, break down easily and form the base of indolent, profusely secreting thrombophlebitic ulcers. Again, the pulse and the temperature may not be affected in spite of the striking inflammatory reaction in and around the vein.

The third form is thrombophlebitis of the deep veins. This presents an entirely different picture. An early sign is a stepladder type of pulse, a rise in temperature is often present but is not characteristic. There may be pain on pressure over the instep or over the calves. The pulses of the foot are diminished as the femoral artery

17 Barker N W and Baker T W. Proliferative Intimatis of the Small Arteries and Veins Associated with Peripheral Neuritis. Livedo Reticularis and Recurring Necrotic Ulcers of the Skin. *Ann Int Med* 9: 1134 (Feb.) 1936.

18 Putnam T J. Evidences of Vascular Occlusion in Multiple Sclerosis and Encephalomyelitis. *Arch Neurol & Psychiat* 37: 1298 (June) 1937.

19 Matus Rudolf. On So-Called Primary Axillary Thrombosis Caused by Strain. *Am J Surg* 24: 642 (June) 1934.

20 de Takáts Geza. Reflex Dystrophy of the Extremities. *Arch Surg* 54: 937 (May) 1937.

contracts because of the irritation of its vasoconstrictors. Later the skin of the toes becomes warmer on the affected side<sup>21</sup> and there is a slight swelling in the groin. All these signs are prodromal, and should the clot remain small or remain localized in the pelvic veins, no further signs develop and the thrombosis is overlooked. Should the clot occupy branches of the hypogastric vein, such as the perivesical, perirectal, perituterine or periprostatic plexuses, edema of the limb will not develop (fig 2). Frequent micturition, mucous diarrhea and slight swelling of the suprapubic region are signs suggestive of pelvic thrombosis. Only when a clot breaks loose suddenly and produces pulmonary embolism or when, months or years later, atypical varicosities develop on the lower extremities, will it become clear that small short clots in the pelvis, not obstructing the external iliac veins, have been overlooked.

When the thrombophlebitis is typical and fully developed, however, after the prodromal signs or often

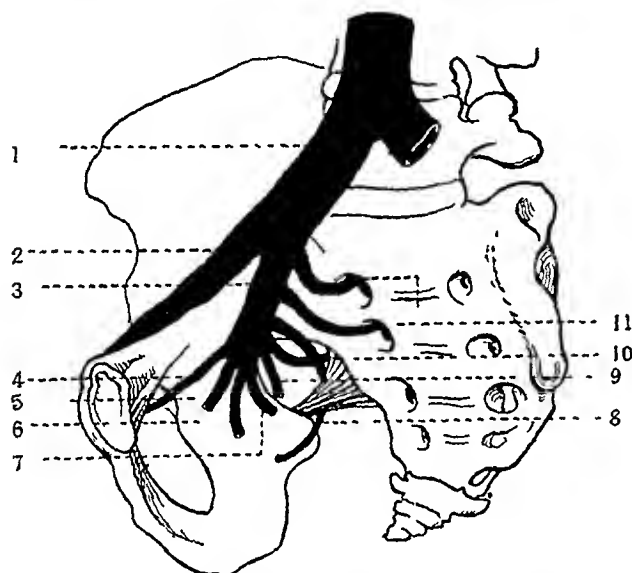


Fig 2—The fanwise distribution of the internal iliac (hypogastric) vein in the pelvis. From Ducuing J. Phlebitis thromboses et embolies postopératoires. Paris: Masson & Cie 1929, by courtesy of the publishers. The inferior vena cava divides at the upper margin of the sacroiliac articulation. The internal and external iliac veins unite at a sharp angle. Veins: 1 common iliac, 2 external iliac, 3 hypogastric, 4 obturator, 5 middle vesical, 6 uterine, 7 middle hemorrhoidal, 8 internal pudic, 9 sciatic, 10 gluteal, 11 lateral sacral. Phlebitis of these branches may cause peculiar and simultaneous localizations of edema or abscesses in the vulval, gluteal, sciatic or retrosacral regions.

without them a sudden excruciating pain is felt in the groin, followed by a rapidly increasing swelling of the limb, which is first blue and pits easily on pressure but rapidly becomes white and hard, presenting the so-called milk-leg. The accompanying fever and pain and the general toxic state of the patient diminish the milk secretion of lactating mothers to such an extent that both physicians and the lay public used to think that the milk had wandered down into the legs, hence the name. As Homans<sup>22</sup> has pointed out, this white hard edema is due at least in part, to blockage of the lymphatics surrounding the large veins and not only to venous edema. The clot becomes palpable along the course of the femoral vein in Scarpa's triangle, it is painful on pressure.

One should add a fourth form of venous thrombosis in the lower extremities, which is fortunately rare but

is very often fatal. This is thrombosis of the perforating veins of the muscles in the calf of the leg, it produces localized swelling of the calf, which is painful on pressure, runs a febrile course and often produces fatal pulmonary embolism.<sup>23</sup> The clots in the veins of the muscles grow by apposition, hang into the swift current of the deep veins and are easily mobilized or broken loose by muscular action. All three patients with this type whom I have seen, two of them physicians, have died of pulmonary embolism.

In most cases thrombosis has an infectious basis, and therefore a search must be made for the sources of infection. Infections in teeth, tonsils, prostate or cervix should be eradicated even if an etiologic connection is uncertain, as they may act as sensitizers. Thus, acute recurrent tonsillitis easily reactivates slumbering phlebitis. The removal of foci is best undertaken during a quiescent, chronic stage, a too early search for foci aggravates a latent infection. I have seen fatal pulmonary embolism follow a tonsillectomy undertaken to calm down slowly receding phlebitis.

The superficial type of thrombophlebitis requires elastic support in the form of bandage, stocking, elastic, adhesive tape or a paste of zinc oxide and glycerin. When the patient is seen in the acute stage, roentgen therapy in small doses (from 95 to 100 roentgens with a heavy filter) is given two or three times at ten day intervals. This produces a remarkable regression of the periphlebitic exudate. Rest in bed, elevation of the affected part, hot wet packs or an electric cradle are necessary for only a few days until the fever and pain disappear. Afterward the patient is not immobilized. Prolonged immobilization of patients with the superficial type of phlebitis is not necessary and may even favor the formation of a clot in the femoral vein. Should the thrombophlebitis be tubular, rapidly ascending and accompanied by fever or chills, ligation of the saphenous vein at the saphenofemoral junction is indicated. This prevents further ascent of the clot and beneficially influences the phlebitis by relieving it from fluctuations of pressure coming from above.

In the treatment of deep thrombophlebitis or phlebitis of the communicating veins, one must try to combat (1) embolism, (2) ascending thrombosis and (3) persistent edema. Once the diagnosis of thrombosis in the deep or perforating veins is made, the patient must be immobilized with the limb slightly elevated under a heat cradle. In most cases, first the temperature and then the pulse will return to normal. It has been my custom to wait ten days after the evening pulse has become normal and then to allow sitting up, slight active exercises and a few steps. Should the pulse rate increase again, further immobilization is necessary. The sedimentation rate, if available, is an excellent guide as to the activity of the clot.

In some cases fever persists for many weeks, the white count remains high and secondary anemia develops. In a physician's daughter I saw the development of mild endocarditis, with the production of a murmur. Other patients will show one or two showers of pulmonary emboli. For such patients especially when they are septic, ligation of the iliac vein above the thrombosis must be seriously considered.<sup>24</sup> In weighing the results of such a ligation, it must be remembered that the venous obstruction is already

<sup>21</sup> Ipsen, Johannes. *Hauttemperaturen*. Copenhagen: Levin and Munksgaard 1936.  
<sup>22</sup> Homans, John. Thrombophlebitis of the Lower Extremities. *Ann Surg* 87: 641 (May) 1928.

<sup>23</sup> Homans, John. Thrombosis of the Deep Veins of the Lower Leg Causing Embolism. *New England J Med* 221: 993 (Nov. 29) 1934.  
<sup>24</sup> Bancroft, F. W. Proximal Ligation and Excision of Veins for Septic Phlebitis. *Ann Surg* 106: 308 (Aug.) 1937. Veith, F. M. Excision of Vein for Suppurative Thrombophlebitis. *Ann Surg* 106: 311 (Aug.) 1937.

present and that the additional ligation will not add to the venous embarrassment if important venous collaterals are avoided. When treatment is successful, the temperature promptly drops and the danger of embolism is minimized.

The next consideration is the emergency treatment of pulmonary embolism, which occurs comparatively infrequently in cases of massive thrombophlebitic edema when the condition is recognized and the patient immobilized, but much more often in association with unrecognized pelvic clots or thrombosis in the perforating veins of the calf. Patients die as a result of a massive pulmonary embolus in a few seconds in several hours or in several days. Roughly 50 per cent of all patients die before any medical or nursing help can arrive, but the other half live at least fifteen minutes. In some instances an extraction of the clot has been attempted, and of over 100 such attempts, nine were successful.<sup>25</sup> The three great handicaps in the performance of successful operations are (1) the confusion of pulmonary embolism with coronary thrombosis, (2) the absence of a properly trained and equipped surgical team in most communities and (3) the recurrence of pulmonary embolism after a successful embolectomy. The operation at present is to be regarded as an interesting, desperate effort or a stunt, and its wide adoption is not to be expected. More important are some simple measures, which can be used even in the home. If the patient is cyanotic, oxygen should be administered by mask or, better by an intranasal catheter. One-half grain (0.03 Gm.) of papaverine, as in the treatment of embolism of the peripheral arteries, overcomes the accompanying vessel spasm. If the blood pressure has fallen to 90 mm. of mercury or below, its cautious elevation with ephedrine or neosynephrine may be tried. Too sudden elevation may press more clots through from the right side of the heart, although this is a theoretical consideration.

Should the embolus be small and the patient recover from the immediate danger, bloody sputum, a pleural friction rub and a roentgenogram of the chest will indicate the size and location of the infarct. The best treatment is prevention of further emboli. This is the time, if the location of the original thrombus is recognized, for a prophylactic ligation proximal to the clot.

The last but practically very important consideration is the prevention of future persistent edema of the leg afflicted by deep venous thrombosis. The treatment must really begin on the day of the formation of the clot. Every effort must be made to rid the limb of the swelling, as persistent edema, rich in protein, will produce permanent fibrosis of the subcutaneous tissue.<sup>26</sup> To this end, fluids are restricted to 1,000 cc. a day, salt is restricted and ammonium chloride or nitrate is given in 15 grain (1 Gm.) doses four times a day. The limb is maximally elevated and a heat cradle is applied. Two or three days later a mercury diuretic such as salyrgan is given intravenously, not more than 0.5 cc. at first and 1 cc. two days later. The intravenous administration of calcium gluconate has also proved helpful.<sup>27</sup> All these drugs tend to mobilize fluid from the edematous limb, and if the edema subsides it is much easier to prevent further swelling by elastic support than if the patient is allowed to get up with a

swollen limb. After the patient gets out of bed, elastic support must be maintained for a year or longer. Even so, a lasting reduction of the swelling cannot be predicted or promised, as it will depend on the length of the clot and on the extent to which the tributary veins are plugged.

This emergency treatment of deep venous obstruction is again in the hands of the general practitioner. When the patient is seen years after onset, the fluid has become fixed, the lymphatics are destroyed and the tissue is fibrous. At that stage only extensive excision of the diseased tissue can help, but this is to be undertaken only in cases of extreme involvement, in which stasis of lymph predominates.

#### SUMMARY

The first aid given for vascular accidents of the extremities, such as arterial hemorrhage, embolism and thrombosis and venous hemorrhage and thrombosis will often determine the future course and the recovery or disability of the affected limb. With simple measures available to every physician, the majority of accidents can be adequately handled. In larger communities, the younger surgeons can prepare themselves for the surgical treatment of these emergencies, which often consists of limb-saving or life-saving measures.

122 South Michigan Avenue

## THE EFFECT OF VITAMIN B<sub>1</sub> ON THE PERIPHERAL NEURITIS OF PELLAGRA

TOM D SPIES, M.D.

AND

CHARLES D ARING, M.D.

CINCINNATI

Pellagra has come to be accepted as a clinical syndrome characterized by symptoms referable to the alimentary tract and the dermal and neural systems. The literature on the mental changes in pellagra is extensive, but relatively few observations have been reported on the involvement of the peripheral nerves. While studying so-called alcoholic pellagra a number of years ago, Spies and DeWolf<sup>1</sup> were forced to the conclusion that alcohol is not the sole cause of the neuritis accompanying this disease. The correctness of this point of view has been established by Strauss,<sup>2</sup> Jolliffe, Colbert and Joffe,<sup>3</sup> Spies and Blankenhorn,<sup>4</sup> Romano<sup>5</sup> and Goodhart and Jolliffe.<sup>6</sup>

During our studies on the peripheral neuritis associated with pellagra we noted that we could not distinguish it from the peripheral neuritis of beriberi. This observation led us to administer large amounts of yeast, wheat germ and liver extract to patients with

From the Department of Internal Medicine and Neurology, University of Cincinnati College of Medicine.

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1 Spies T D and DeWolf H F. Observations on the Etiological Relationship of Severe Alcoholism to Pellagra. *Am J M Sc* 186: 521 (Oct) 1933.

2 Strauss Maurice B. The Etiology of 'Alcoholic Polyneuritis'. *Am J M Sc* 189: 378 (March) 1935.

3 Jolliffe Norman, Colbert C N and Joffe Philip. Observations on the Etiologic Relationship of Vitamin B (B<sub>1</sub>) to Polyneuritis in the Alcohol Addict. *Am J M Sc* 191: 515 (April) 1936.

4 Blankenhorn M A and Spies T D. Prevention Treatment and Possible Nature of the Peripheral Neuritis Associated with Pellagra and Chronic Alcoholism. *Tr A Am Physicians* 1: 164 1935.

5 Romano John. Deficiency Syndromes Associated with Chronic Alcoholism. A Clinical Study. *Am J M Sc* 194: 645 (Nov) 1917.

6 Goodhart Robert and Jolliffe Norman. Observations on the Effects of Vitamin B (B<sub>1</sub>) Therapy on the Polyneuritis of Alcohol Addicts. *J A M A* 110: 414 (Feb 5) 1938.

25 de Takats Geza. Embolism in Christopher Frederick A. Text book of Surgery. Philadelphia W. B. Saunders Company 1936.

26 de Takats Geza. The Management of Acute Thrombophlebitic Edema. *J A M A* 100: 34 (Jan 7) 1933.

27 Zimmermann L M and Lieberman A L. The Therapeutic Effects of Calcium Gluconate on Thrombophlebitic Edema. *J Pharmacol & Exper Therap* 48: 301 (July) 1935.

deficiency diseases and accompanying neuritis. Having obtained successful results with this method of therapy, we undertook controlled studies, using crystalline vitamin B<sub>1</sub>. These studies form the basis of the present report.

#### MATERIAL AND METHODS

Six cases of classic pellagra were selected for the study of peripheral neuritis. In four, pellagra had developed after the substitution of the calories of alcohol for the calories ordinarily obtained from food. In the remaining two cases the pellagra was unassociated with chronic alcoholic addiction (the so-called endemic type of pellagra). It has been pointed out previously<sup>1</sup> that the severe peripheral neuritis associated with pellagra usually progresses when the patient is restricted to a pellagra-producing diet. The vitamin B<sub>1</sub> crystals (aneurin, torulin, thiamin) given as supplements to the pellagra-producing diet used in this study were supplied through Dr. Hans Molitor of Merck & Co. Histories of two representative cases of pellagra with involvement of the nerves follow.

**CASE 1—History.**—G. S., a Negro woman, aged 34, was admitted to the medical service of the Cincinnati General Hospital on Dec. 7, 1937. About ten months previously her husband had gone "on relief," which made it necessary for five adults, including the patient, to subsist on \$6 a week. Three months before the patient's admission to the hospital her appetite became very poor, and a month later she began to note numbness, pain and tingling in the feet and legs. Her tongue became sore at about this time. One month before her admission a scaly, dry and symmetrical eruption appeared over the dorsa of both hands. One week later the same type of dermal lesion developed beneath the breasts and about the vagina, and the lesions on the hands spread to involve the flexor and radial surfaces of the forearms up to the elbows.

At about this time the patient's physician prescribed a diet consisting of milk, greens and an occasional egg and told her to eat no meat. She lost weight rapidly on this regimen. Shortly thereafter numbness was observed in the upper extremities and the trunk. December 3 she lost consciousness for about two hours. On regaining consciousness, she was delirious, salivated profusely and apparently could not move her lower extremities. Thereafter she continued to salivate profusely, was apprehensive and weak and complained of soreness of the mouth.

The past history contained nothing related to her condition at the time of admission to the hospital, with the single exception that she had partaken moderately of alcoholic beverages and had occasionally overindulged. However, she had not done so within three or four years prior to admission.

**Examination.**—There were dark, dry, scaly lesions, symmetrical and well demarcated, on the dorsa of both hands, along the flexor and radial surfaces of the forearms and over the elbows. The same type of lesion was present beneath the breasts, in the skin of the perineum, in the sacral region, over the dorsa of the feet and about the ankles. The lesions beneath the breasts were macerated and reddened and exuded serum. The tongue was smooth and scarlet, and the entire buccal membrane was very red as were the margins of the gums. The gums were partially covered by a thick Vincent's membrane. The openings of Stensen's ducts were enlarged and reddened. The lips were swollen and cracked. The patient was salivating profusely. The blood pressure was 98 systolic, 60 diastolic.

Neurologically she presented several abnormalities. She was dull and could not concentrate or cooperate for any length of time. Her responses were unreliable and she was very apprehensive and occasionally became excited. There were mild wasting of the muscles in the gastrocnemius group in the legs, tenderness in the muscles of the lower extremities and diminution in the perception of touch, pain and temperature below the knees. All of the tendon reflexes were very active with the exception of the ankle jerks, which could not be elicited. Left patellar clonus was present.

The blood count showed 3,500,000 red cells, which were normal in size and color. The hemoglobin content was 11 Gm per hundred cubic centimeters. The white cells ranged between 4,200 and 8,200, with a normal differential count. Examinations of the urine and the stools gave normal results, except that large quantities of coproporphyrin were excreted in the urine. The excretion returned to normal after the administration of nicotinic acid. The carbon dioxide combining power was 43 volumes per cent. The blood urea nitrogen content was 9 mg and the serum protein content 5.9 Gm per hundred cubic centimeters. The Wassermann reaction of the blood was positive on one occasion and negative on two others. The Kahn reaction of the blood was positive, with sensitized antigen, on three occasions. Myriads of Vincent's organisms were demonstrated in smears from the gums, the vagina and beneath the breasts.

**Progress.**—On admission (Dec. 7, 1937), the patient was placed on a pellagra-producing diet. This diet included corn meal, hominy, white flour, sugar, pork fat, sweet potatoes and small amounts of cabbage and collards. It resembles Goldberger's and Wheeler's diets more than any of the other deficient diets; the total calories are adequate, the protein is low and the minerals (calcium, phosphorus and iron) are low. It is adequate in its vitamin A and C content but low in vitamins B, D and G.

On December 7, 500 mg of nicotinic acid was given orally in doses of 100 mg every half hour. Transitory itching of the dorsa of the hands and wrists followed. Thereafter 1 Gm of nicotinic acid in a 1 to 1,000 solution was administered daily until the patient's discharge from the hospital (200 cc of the solution orally five times a day). On December 8 the buccal mucous membranes were less red. Stensen's ducts were not as prominent as they had been at the time of admission, and the salivary secretion, of which the patient expectorated 2,000 cc during the first twenty-four hours in the hospital, dropped to 50 cc of expectoration within forty-eight hours. The mucous membranes of the oral cavity and the vagina healed within twenty-four hours after the nicotinic acid therapy was begun, but the dermal lesions healed slowly and the peripheral neuritis became worse, in that the spontaneous pain, the numbness and the pain caused by handling the feet were much more severe. The intravenous injection of 10 cc of sterile saline solution for three days, beginning December 14, did not have any therapeutic effect (suggestion). By this time Vincent's organisms had disappeared from the mouth, vagina and lesions of the skin.

On December 17 and daily thereafter 50 mg of crystalline vitamin B<sub>1</sub> in sterile physiologic solution of sodium chloride was injected intravenously. The diet was not altered. On December 19 the patient volunteered that the pain and numbness in the legs had disappeared, and her appetite became voracious. She complained of having too little to eat, though she was given the basic diet. She became cheerful and lost apprehension, she was alert and her responses to sensory tests were accurate for the first time. There was no change in the other results of neurologic examination except that muscular tenderness in the lower extremities was obviously diminished. Her weight, which was 123 pounds (56 Kg) on December 12, had increased to 131½ pounds (59.6 Kg) by December 18. On December 22 she was able to get out of bed for the first time since admission and she walked without difficulty. On December 26 her weight was 141½ pounds (64.2 Kg). She was given a well balanced diet for a few days prior to discharge. She was discharged from the hospital much improved on December 29. The dermal lesions of the hands and forearms had disappeared, and those beneath the breasts and about the perineum had healed, leaving only residual pigmentation.

**CASE 2—History.**—C. S., a white man aged 52 was admitted to the medical service of the Cincinnati General Hospital on Oct. 27, 1937. Since April 1937 his regular diet had been gradually replaced by whisky, so that by May 1937 he was consuming from 1 to 2 pints daily. In mid June dermatitis appeared on the dorsa of the hands and on the elbows. Two weeks later these areas were reddened, tough and blistered. At this time the patient's tongue became sore and very red and shortly thereafter pains in the legs which radiated down to the toes, developed.



On July 13 he entered the St Elizabeth Hospital, Covington, Ky, where a diagnosis of pellagra and polyneuritis was made. We saw him there. Six ounces (180 cc) of dry powdered brewers' yeast was administered each day, and at the end of two weeks his dermal lesions began to recede, but severe diarrhea (fifteen stools daily) developed, which lasted for two weeks. The diarrhea, dermatitis and glossitis were finally relieved by the therapy, and he was discharged on August 24. However, the radiating pains in the legs and feet steadily became worse, and by mid-August he could not bear the weight of bedclothes on his lower extremities. In early September the pain no longer radiated, it became constant and was confined to the knees, legs and feet. There was an intense burning sensation on the soles of the feet.

**Examination**—The examination performed when the patient was admitted to the Cincinnati General Hospital, on October 27, showed that he was poorly nourished, the tongue was coated and the skin on the dorsa of the hands and elbows presented residual changes of pellagrous dermatitis. The blood pressure was 118 systolic, 80 diastolic.

Neurologic examination revealed that there were six or seven nystagmoid jerks when the patient fixed his eyes to the right or left, the tongue was tremulous and there was some muscular atrophy in the interosseous and the lumbrical muscles, in the thenar and the hypothenar eminences of both hands and in the thigh muscles. The hand grasps were moderately weak, but no other loss of motor power was demonstrable. There was marked tenderness to deep pressure in the muscles of the feet, legs, forearms and arms. The recognition of pain, temperature and touch stimuli was diminished in the lower extremities up to a point about 3 inches above the knees and in the upper extremities up to the insertion of the deltoid muscle. This border was not a sharp one. The appreciation of vibration was diminished about one half in the extremities and even more so in the lower extremities. Fine passive changes in the position of the toes were not appreciated by the patient, however, he named large displacements properly. He was extremely sensitive to stroking of the soles of the feet. The tendon reflexes were normal with the exception of the ankle jerks, which were not obtained. The plantar responses were normal in the right foot, there was no response to plantar stimulation in the left foot.

The blood count showed 5,000,000 red blood cells, which were normal in size and shape. The hemoglobin content varied from 138 to 156 Gm per hundred cubic centimeters. The white cells ranged from 6,400 to 9,600, with normal differential counts. The sedimentation rate was 16 mm an hour (corrected rate). The Wassermann and the Kahn reaction of the blood were positive. Gastric analysis showed no free hydrochloric acid before or sixty minutes after the injection of  $\frac{1}{2}$  grain (0.003 Gm) of histamine. The pressure of the cerebrospinal fluid was normal, there were 2 lymphocytes in a blood tinged (trauma) fluid. The total protein content was 72 mg per hundred cubic centimeters and the chlorides 701 mg. The Wassermann reaction of the cerebrospinal fluid was negative.

**Progress**—On October 30 the patient was placed on a basic diet low in vitamin B and on November 3 on the basic diet used in case 1. From November 3 through November 8 he was given small amounts of physiologic solution of sodium chloride intravenously (for its suggestive effect), but he noted that this medicine was "not so good," as he had constant pain and burning sensations in his legs. By November 9 weakness had progressed to such an extent that movements about both ankles were very weak, the left ankle being worse than the right. Flexion and extension of the forearms were definitely weak. From November 9 through December 3 he was given a daily intravenous injection of 50 mg of crystalline vitamin B<sub>1</sub>, receiving twenty-five injections in all. On December 10 he ceased complaining of pain, and by the eleventh he volunteered that there was complete remission of spontaneous pain. On December 14 he walked with ease and without pain for the first time since admission. Whereas salicylates, amopyrine, barbital and 2½ grains (0.02 Gm) of codeine daily had been necessary to control the pain before the use of crystalline vitamin B<sub>1</sub>, no analgesic was required as long as administration of the vitamin was continued.

The neurologic status was checked daily, and on December 13 the significant observation was diminution of motor power in all the muscle groups of the extremities, more obvious in the distal structures and greater in the lower left extremity than in the right. Only the slightest movement was possible in the left toes and the left ankle. There was diminution of all types of sensation in the distal portions of the extremities, and sensation gradually (no sharp border) approached normal just above the patella and the elbow. Touch was not appreciated in the lower third of the left leg or in the left foot, and the patient was unable to identify pin prick in the left leg until the upper border of the patella had been reached, although he realized that there was "something dull" in the leg when it was stimulated below that level. The same phenomenon was present in the right leg, where the level of identification of pin prick was at the junction of the upper third with the lower two thirds of the leg. The appreciation of vibration was diminished about one half over the malleoli. Position sense was poor in the left toes but good in the right. There was tenderness to pressure in the muscles of the feet, legs and arms, especially over the nerve trunks. There was no complaint of spontaneous pain. The only abnormal tendon reflexes were hypo-active knee jerks, and the ankle jerks were not elicited. It was noted from the neurologic examinations that there was no improvement, with the single exception of the remission of spontaneous pain.

The patient continued to improve, even though the injection of vitamin B<sub>1</sub> was discontinued on December 3. His weight increased and his motor power slowly improved. However, on December 24 he complained of some pain in the axillae, and examination of these regions revealed tenderness about the brachial plexus. In late December and early January spontaneous pain increased and was worse in the upper than in the lower extremities. Sharp radiating pain traveled from the axillae down the arms and into the forearms, and down the posterior surface of the thighs and legs to the feet. By January 3 the motor status had regressed to that noted on December 13, and the patient was extremely tender along the course of the nerves in the axillae, arms and forearms. His weight had improved from 107½ pounds (48.8 Kg) on November 7 to 116 pounds (52.6 Kg) on January 1.

#### COMMENT

The experience detailed in these two cases was similar to that in the remaining four. Irrespective of whether the pellagra followed long-standing ingestion of alcohol, the prompt relief of the spontaneous pain of neuritis by the intravenous injection of crystalline vitamin B<sub>1</sub> was striking in all cases. Nicotinic acid by mouth was used in three cases and completely relieved the severe stomatitis and glossitis and promptly produced healing of all the lesions of the mucous membranes. The observations suggest that the painful peripheral neuritis in these particular cases was caused, at least in part, by a lack of vitamin B<sub>1</sub>. The response following the injection of this substance was prompt and dramatic. These studies complement the suggestion offered a number of years ago that the clinical manifestations of the pellagra syndrome are perhaps caused by a lack of more than one essential substance. Not all persons with pellagra, however, have peripheral neuritis.

While these pellagrins responded to a basic diet plus supplements of nicotinic acid and thiamin (vitamin B<sub>1</sub>), it is not recommended that such a diet be used in the treatment of pellagra.

#### SUMMARY AND CONCLUSIONS

1 Our observations suggest that vitamin B<sub>1</sub> deficiency had a role in the development of the clinical manifestations of peripheral neuritis associated with the pellagra in these cases.

2 Certain patients fail to absorb vitamin B<sub>1</sub> effectively by mouth, and it is imperative that they be

given parenteral injections. Parenteral injections shorten convalescence and are desirable from the standpoint of prompt relief of pain.

3 Vitamin B<sub>1</sub> does not cure the glossitis and the stomatitis of pellagra,<sup>7</sup> but the observations in case 1 and in other cases suggest that nicotinic acid, which does cure these symptoms,<sup>8</sup> will not cure the peripheral neuritis.

## THE TREATMENT OF METASTATIC CARCINOMA OF THE NECK

### SECONDARY TO CARCINOMA OF THE LIP

R. B. MORELAND, M.D.

HINES, ILL.

My purpose in this paper is to present rather briefly what appears to be the best treatment for metastases to the neck from carcinoma of the lip.

Results obtained by the irradiation of cervical metastases have been reported by Schreiner and Mattick,<sup>1</sup> Schreiner and Simpson,<sup>2</sup> Dund and Holton<sup>3</sup> and others. The diagnosis of cervical metastases in these cases was made clinically. The question always arises in one's mind as to how many of these patients would have had microscopically negative glands. This number would probably vary widely in different series. Bloodgood<sup>4</sup> has stated that he found the clinical diagnosis of metastasis proved wrong much more frequently than the reverse.

Results obtained by surgical intervention have been reported by Fischel,<sup>5</sup> Wangenstein and Randall,<sup>6</sup> Eggers<sup>7</sup> and Kennedy.<sup>8</sup> Glands removed were examined microscopically. It is difficult, however, to classify and compare cases clinically. Different conceptions are had concerning what constitutes a neck clinically negative for metastases, what patients have glands which clinically show only inflammatory hyperplasia, what patients have glands which clinically show metastases, and lastly what constitutes the limit of operability.

Results from the combined irradiation and surgical treatment have been reported by Quick,<sup>9</sup> Martin,<sup>10</sup>

Hyndman<sup>11</sup> and Scott.<sup>12</sup> Results are the best, I believe, from this type of treatment. This is the type of treatment advocated in this paper. It has been my observation that one is less biased in one's selection of the method of treatment to be followed in a particular case when all methods are equally available and that better judgment can usually be exercised by one familiar with the various methods of treatment.

Broders<sup>13</sup> has shown a definite relationship between the histology of the lesion and the results obtained by treatment.

An interesting study has been made by Pflueger,<sup>14</sup> reporting the type of treatment given by thirty prominent radiologists, dermatologists and surgeons. Because of the difficulties mentioned, it is difficult to compare the results obtained by these various men and their methods of treatment.

In my opinion the neck should not ordinarily be treated until the primary lesion has been treated and controlled. The primary lesion may be successfully treated, in a very high percentage of cases, by surgery, radium or x-rays. Good surgery is better than poor irradiation, and vice versa. Some lesions, however, are better treated by irradiation, others by surgery. Very briefly, anaplastic tumors of grade 3 or 4 malignancy are more suitable for irradiation. The agent employed is less important in more differentiated tumors of low grade malignancy. As in the treatment of all other tumors, there is a necessity for familiarity with exactly what can be accomplished by both surgery and irradiation. It has become my custom, in order to avoid delay in treating the neck, when operable metastatic glands are present, to excise the lesion of the lip and about two weeks later do a dissection of the neck.

It is generally agreed that cancer metastasis is an embolic phenomenon and that carcinoma cells cannot be demonstrated in the lymphatics or other tissues between the primary lesion and the metastases.

Numerous reports have shown that in carcinoma of the lip remote metastases occur in less than 1 per cent of the cases, and metastasis to the regional lymphatics in from 20 to 25 per cent of the cases.

Lesions most apt to metastasize are (1) those of high grade malignancy, especially grades 3 and 4, (2) infiltrating tumors (papillary lesions are less likely to metastasize), (3) rapidly growing lesions, and (4) previously treated lesions, especially those improperly and inadequately treated. It has been observed that the incidence of cervical metastasis is higher in lesions previously treated with paste or other types of escharotics.

Prophylactic irradiation is not given to the neck.

Nodes that are thought to be inflammatory are watched. If there is much doubt or if the nodes are thought to be metastatic, dissection of the neck is done. Preoperative irradiation is not given. Postoperative irradiation (from 3,000 to 4,000 roentgens through two portals) is given in all cases in which the glands removed show carcinoma microscopically. The reason for giving postoperative irradiation is that it is believed, although it has not been proved, that any persistent cells are more sensitive for a short time following surgery. This opinion was recently expressed

11 Hyndman O. R. Carcinoma of Lip. Clinicopathologic Analysis of Seventy Seven Cases and Suggestions for Rational Plan of Treatment. Arch. Surg. 27: 202-266 (Aug.) 1933.  
12 Scott R. K. Treatment of Epitheliomatous Glands of Neck. M. J. Australia 2: 302-312 (Oct. 24) 1931.  
13 Broders A. C. Squamous Cell Epithelioma of Lip. J. A. M. A. 74: 636 (March 6) 1920.  
14 Pflueger O. H. Treatment of Neck Glands in Cancer of Lip. Tongue and Mouth. Study of Present Day Practice. California & West Med. 30: 391-397 (Dec.) 1933.

7 Spies T. D. Unpublished observations.

8 Spies T. D. Cooper Clark and Blankenhorn M. A. The Use of Nicotinic Acid in the Treatment of Human Pellagra. read before the Central Society for Clinical Research. Chicago Nov. 5 1937.

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The author received assistance and cooperation from Dr. Max Cutler, consultant in tumors and other members of the staff, especially Dr. Hugh Scott, Dr. William E. Kendall, Dr. Paul Brown and Dr. Gerald R. Allaben.

1 Schreiner B. F. and Mattick W. L. Radiation Treatment of Cancer of the Lip. Am. J. Roentgenol. 30: 67-74 (July) 1933.

2 Schreiner B. F. and Simpson B. T. End Results of Irradiation in Carcinoma of the Lip. Radiol. Rev. & Chicago M. Rec. 51: 235-245 (June) 1929.

3 Dund C. C. and Holton H. M. Report of Results of Treatment at Collis P. Huntington Memorial Hospital from 1918-1926. Am. J. Roentgenol. 30: 59-66 (July) 1933.

4 Bloodgood J. C. Cancer of the Lip in Lewis Dean. Practice of Surgery. Hagerstown Md. W. F. Prior Company, Inc. 4: 74 1930.

5 Fischel Ellis. Surgery as Applied to Lymph Nodes in Cancer of Lip and Buccal Cavity. Statistical Study. Am. J. Surg. 24: 711-731 (June) 1934.

6 Wangenstein O. H. and Randall O. S. Treatment and Results in Carcinoma of Lip. Report of 130 Cases. Am. J. Roentgenol. 30: 73-81 (July) 1933.

7 Egger Carl. Cancer of the Mouth. Ann. Surg. 99: 69-80 (Jan.) 1934.

8 Kennedy R. H. Epithelioma of the Lip with Particular Reference to Lymph Node Metastases. Ann. Surg. 99: 81-93 (Jan.) 1934.

9 Quick Douglas. Metastatic Epidermoid Carcinoma in Neck. Technical Considerations in Combined Method of Treatment. Am. J. Surg. 30: 207-214 (Nov.) 1933.

10 Martin H. E. Moderately Advanced Carcinoma of Lip with Metastases to Neck. Treated by Irradiation and Surgery. Living and Free of Disease Over Three Years. S. Clin. North America 13: 437-439 (April) 1933.

by Sir Lenthal Cheatele<sup>15</sup> of London, England, in discussing carcinoma of the breast Dr Cheatele also recommends washing out the wound at the completion of the operation with 1 500 solution of mercury bichloride, as he believes that this is likely to destroy any loose tumor cells

I find no definite proof of the value of irradiation when given prophylactically to the neck or when given when the nodes are palpably enlarged If the nodes disappear, there is no microscopic evidence that the

and the carefulness of his examination It is better to err by removing some nonmalignant glands than to defer surgical operation for observation of the patient, especially if the patient cannot be watched closely

There are many types of so-called neck dissections Some men mean merely removal of the gland involved, others, block removal of all lymphatics, from the clavicle to the base of the skull, including the sternomastoid muscle, internal jugular vein and other of the soft tissue structures on one or both sides, some

TABLE 1—Ten Cases of Carcinoma (Squamous Cell Keratinizing) of the Lip No Evidence Clinically of Metastases in the Neck

Case No	Date	Name	Primary Lesion	Pre operative Irradiation	Type of Operation	Glands Microscopically	Post operative Irradiation	Result
1	7/24/34	R K	Advanced grade 2	Yes	Bilateral suprahyoid	Negative	Yes	Well October 1937
2	1/23/35	W H	Left lip 2 by 3 cm	Yes	Bilateral suprahyoid	Negative	No	Well October 1937
3	2/14/35	D H	Right, 2 cm	Yes	Bilateral suprahyoid	Negative	No	Well October 1937
4	2/15/35	R G	1.5 cm grade 2	No	Right submaxillary node excised	Negative	No	Well October 1937
5	3/25/35	W R B	2 by 3 cm	No	Bilateral suprahyoid	Negative	No	Well October 1937
6	4/ 7/35	E A L	2 cm right	No	Bilateral suprahyoid	Negative	No	Well October 1937
7	4/ 9/35	T J M	1 cm left	No	Bilateral suprahyoid	Negative	No	Well October 1937
8	4/20/35	B S	2 cm grade 3	No	Bilateral suprahyoid	Negative	No	Well October 1937
9	5/ 8/35	E E D	1 cm left superinfacial	No	Bilateral suprahyoid	Negative	No	Well October 1937
10	5/15/35	F B	Papillary 1 cm grade 2	No	Bilateral suprahyoid and left upper cervical	Negative	No	Well October 1937

In these ten cases in which the neck was clinically negative for metastases the glands were microscopically negative in all ten cases It is believed that operation was unnecessary in these cases All the patients are living and well

TABLE 2—Fifteen Cases of Carcinoma (Squamous Cell, Keratinizing) of the Lip Clinical Evidence of Early Operable Metastases in the Neck

Case No	Date	Name	Primary Lesion	Neck	Type of Operation	Glands Microscopically	Post operative Irradiation	Result
1	11/24/34	M S	Treated for 10 yrs	Hard right submaxillary	Bilateral suprahyoid	Positive	Yes	Well October 1937
2	1/29/35	L A	Recurrent	Hard right submaxillary	Right submaxillary node excised	Negative	No	Well December 1936
3	2/13/35	G L F	Right 2 cm grade 2	Firm right submaxillary	Bilateral suprahyoid	Negative	No	Well October 1937
4	3/ 8/35	F B	3 cm 3 yrs midline, grade 3	Hard submental and left submaxillary	Bilateral suprahyoid	Positive bilateral	Yes	Well October 1937
5	4/26/35	P R	1 cm right 2 yrs grade 2 3	Hard right submaxillary	Bilateral suprahyoid	Positive right	Yes	Well January 1938
6	11/22/35	C H	1.5 cm right grade 2 3	Hard right submaxillary	Bilateral suprahyoid	Positive right	Yes	Well October 1937
7	6/ 1/36	D C	1 cm right recurrent grade 1 2	Submental small firm	Bilateral suprahyoid	Negative	No	Well October 1937
8	7/ 3/36	W B	Right side grade 2	Right submaxillary rather soft	Right submaxillary node excised	Negative frozen section positive fixed prep	Yes	Well October 1937
9	7/25/36	W B	Entire lip 7 cm grade 2 3	Right submaxillary hard, 1.5 cm	Bilateral suprahyoid	Positive	Yes	Well October 1937
10	10/ 1/36	E L	Entire lip	Hard submental 2 cm left	Left suprahyoid	Positive	Yes	Well October 1937
11	10/13/36	W B	Midline lip	Hard submental, 1 cm left	Submental dissection	Negative	No	Well October 1937
12	2/ 3/37	J P	Previous treatment caustics and radium midline ulcer 1 cm erythema	Submaxillary bilateral 2 cm hard	Bilateral upper neck (2 stages)	Positive bilateral	Yes	Well October 1937
13	4/ 7/37	G W S	Left 1.5 cm indurated ulcerated	Submaxillary bilateral 2 cm hard	Bilateral upper neck (2 stages)	Positive bilateral	Yes	Well October 1937
14	7/14/37	R D B	Midline 1 cm indurated not ulcerated treated March 1937	Submaxillary 2 cm right hard	Right suprahyoid	Positive	Yes	Well October 1937
15	8/ 6/37	G A P	12 mm midline ulcerated treated June 1936	Submental hard 3 cm	Bilateral suprahyoid (1 stage)	Positive	Yes	Well October 1937

In these fifteen cases in which there were early operable glands clinically the glands were microscopically positive in eleven cases negative in four cases All the patients are living and well It is believed that operation was justified and indicated in these cases

nodes were metastatic It has been my observation that true cervical metastasis, microscopically proved, developing from differentiated carcinoma of the lip is seldom, if ever, cured by external irradiation, either radium or x-rays, and only rarely by a combination of external and interstitial irradiation

Far advanced, inoperable cases are suitably treated by external irradiation first, and then interstitial irradiation, usually by means of gold implants of radon

It is not always possible to differentiate, clinically, between hyperplastic inflammatory glands and metastatic glands It is believed however, that the number of errors decreases with the experience of the examiner

do a complete neck dissection on one side and a partial or upper neck dissection on the other side

It seems to be the consensus of the best opinion that in carcinoma of the lip, with operable metastasis in the submaxillary or submental nodes, suprahyoid dissection is sufficient Hyndman<sup>11</sup> believes that dissection should always be bilateral, because of the frequency, in his opinion of crossed metastasis Quick<sup>16</sup> states that removal of the submental, submaxillary and upper deep cervical glands, on the involved side, gives as good results as the more radical operations It has been my custom to follow the latter procedure except

<sup>15</sup> Cheatele Sir Lenthal Carcinoma of the Breast presented at Michael Reese Post Graduate Tumor Clinic Chicago in September 1936

<sup>16</sup> Quick Douglas Radium in Treatment of Metastatic Epidermoid Carcinoma of Cervical Lymph Nodes Am J Roentgenol 33 677 681 (May) 1935



when the lip lesion is located near the midline or when the lesion is very large or of a highly malignant character. Then, a bilateral suprahyoid and upper deep cervical dissection is carried out. Quick<sup>10</sup> also states that "it is our belief that as satisfactory and successful an operation could be done after a node became palpable as before." This also is my opinion. When metastases occur in the deep cervical glands, a complete neck dissection on the affected side is recommended, saving the internal jugular vein and sternomastoid muscle, unless infiltrated by the growth. An

usually the upper deep cervical lymphatics for inspection and palpation before definitely deciding on the limits of the operation.

Since the Tumor Service was organized at the Edward Hines Jr. Hospital in 1931, there have been 525 cases of true carcinoma of the lower lip treated (1931-1936) in addition to ninety keratoses or other precancerous lesions, or a total of 615 cases. In approximately 22 per cent of the cases of carcinoma of the lip cervical metastases were present or developed later. Many of these cases had been neglected and

TABLE 3—Six Cases of Carcinoma (Squamous Cell, Keratinizing) of the Lip. Clinically the Glands Were Advanced, of Borderline Operability

Case No.	Date	Name	Primary Lesion	Neck	Type of Operation	Glands Microscopically	Post operative Irradiation	Result
1	1/21/30	F. P.	Advanced—grade 2-3	Right submaxillary hard, 5 cm., 4 mos. fixed	Right suprahyoid	Positive	Yes	Well October 1937
2	4/20/35	D. L.	Entire lip 1 yr. grade 2-3	Left submaxillary, hard, ulcerated, fixed	Left suprahyoid and seeds	Positive	Yes	Well October 1937
3	12/20/30	F. R.	Scar only	Right submaxillary hard fixed 4 cm.	Right suprahyoid and seeds	Positive	Yes	Probable recurrence in February 1937, not heard from since
4	3/13/36	W. G.	Treated elsewhere	Right submaxillary hard, fixed 4 cm.	Right suprahyoid and seeds	Positive	Refused further treatment	Metastasis left submaxillary in June 1936, had surgery and irradiation elsewhere, died April 1937
5	8/28/36	J. P.	Left 2 cm. grade 2	Left submaxillary, hard 3 cm. partly fixed	Left suprahyoid	Positive	Yes	Well October 1937
6	5/20/37	F. D.	Indurated scar midline result of paste treatment	Fixed, hard right submaxillary 7 cm. partly fixed, hard left submaxillary, 6 cm. posterior cervical bilateral 12 cm. (several) posterior irradiation (elsewhere) probably inoperable	Complete bilateral dissection (2 stages)	Positive (bilateral)	Yes	Recurrence October 1937

In these six cases in which there were advanced cervical glands of borderline operability, the glands were microscopically positive in all six cases. Three patients are living, and well. One has recurrent carcinoma in the neck, one probably had recurrent carcinoma in neck when last heard from in February 1937, and one died of recurrent carcinoma in the neck. The sixth patient who now has recurrence, had been considered inoperable and a terminal case by a private radiologist and had been given irradiation to the neck. A cure was hardly expected by radical surgery but it was hoped at least to prolong his life.

Unilateral dissection of the upper part of the neck was done in five of these cases because of the patients' general poor condition. The opposite side of the neck was observed. Further treatment was not required in four of these six cases. In many cases of this type it is probably justified and indicated, to do a dissection of the upper part of the neck on the opposite side two or three weeks after the first operation.

TABLE 4—Two Cases of Carcinoma (Squamous Cell, Keratinizing, of the Lip). Clinically Operable Glands, Treated by Simple Node Excision and Implantation of Radon Seeds

Case No.	Date	Name	Primary Lesion	Neck	Pre operative Irradiation	Type of Operation	Glands Microscopically	Post operative Irradiation	Result
1	6/29/34	W. C.	5.5 cm. 14 mos. grade 2-3	Multiple hard glands 12 cm.	Yes	Enlarged nodes excised and seeds	Positive	No	Died of metastatic carcinoma 9/20/35
2	11/22/34	P. D.	2 cm. treated 6 mos. by caustics	Submental firm 1 cm. right submaxillary firm 1 cm.	Yes	Enlarged nodes excised and seeds (12/28/34) recurrent nodes excised and seeds (2/12/35)	Positive	No	Died of metastatic carcinoma 12/6/35

In these two cases in which there were clinically operable glands, the glands were microscopically positive. Internal irradiation was given, followed by excision of enlarged nodes and implantation of radon seeds. Both patients are dead of cervical metastases. This treatment is now not recommended for operable cervical metastases.

upper neck dissection may, or may not, be done on the opposite side. Bilateral complete neck dissection is seldom indicated.

As a general principle it is believed that dissection should include not only the anatomic triangle involved but also the two triangles bordering it, that is, the one on each side. For example, for metastasis in the right submaxillary triangle, dissection should include also the submental triangle and the upper deep cervical triangle, anterior and posterior on the right, down to the omohyoid muscle. If metastases are present in the right upper deep cervical triangle, the dissection should include at least the right submaxillary triangle and the entire deep cervical chain, anterior and posterior, including the supraclavicular space. For metastasis in the submental triangle, dissection should include the submental and both submaxillary triangles. It is also frequently advisable, as in this case, to expose par-

were advanced at the time of admission. Many had been previously and improperly treated. It is apparent that this incidence of metastasis is much higher than that when early and adequate treatment is given.

The accompanying tables show the results in the last thirty-three consecutive cases in which dissections of the neck were done during the past three years. All cases had a biopsy diagnosis, but all were not graded microscopically. It has been found difficult to grade some lesions accurately.

Cervical nerve block combined with local infiltration was the anesthesia used in most of the cases. In some, rectal ether supplemented with intratracheal anesthesia was employed. This also is very satisfactory. Avertin with amylene hydrate was abandoned after some untoward reaction in a few cases. There was no operative mortality in this series.

## CONCLUSIONS

1 The results in thirty-one cases treated in the manner advocated are very gratifying. Twenty-eight of these patients are free from disease from a few months to more than three years.

2 Dissection of the neck is advocated when the primary lip lesion has been controlled and when there are enlarged cervical glands thought clinically to be metastatic.

3 Preoperative irradiation is not given. Postoperative irradiation, from 3,000 to 4,000 roentgens, is given in all cases in which the glands are microscopically positive for carcinoma.

4 Observation is advocated when enlarged cervical glands are thought to be inflammatory. Improving the condition of the mouth is all that is necessary in most of these cases.

5 When the cervical glands are not enlarged, neither irradiation nor neck dissection is advocated.

6 Neck dissection can be done as successfully after the glands are enlarged as before, provided operation is not deferred until the glands are large, fixed, ulcerated and inoperable.

7 Combined external and interstitial irradiation is employed in far advanced, palliative cases.

8 Probably no other tumor condition is treated in more ways, or regarding which opinion is more divided and treatment less standardized, than in metastatic carcinoma of the neck.

## PULMONARY COMPLICATIONS

## FOLLOWING 1333 ADMINISTRATIONS OF CYCLOPROPANE

G EDGAR BURFORD, MD  
Director of Anesthesia St. Luke's Hospital  
NEW YORK

During the past five years a new anesthetic gas, cyclopropane, has been gradually introduced into medicine. Its anesthetic properties were discovered in 1929,<sup>1</sup> and its true value has since been established step by step by active cooperation among anesthetists and surgeons,<sup>2</sup> physicians<sup>3</sup> and physiologists and pharmacologists,<sup>4</sup> particularly those at the University of Wisconsin.

The method of introduction, although the gas is revolutionary in its field, has been a model of cautious statement, completely lacking in the publicity and exploitation that has accompanied lesser events.

The new and unique value of cyclopropane lies in the high oxygen content with which it can be used. For instance, two patients at St. Luke's Hospital were anesthetized directly from an oxygen tent, were returned to the tent after operation and recovered.

Other features of this anesthetic, such as ease and pleasantness of induction,<sup>5</sup> greater relaxation than that produced by other gaseous anesthetics, quick elimina-

tion<sup>6</sup> and applicability for special surgical procedures, particularly thoracic operations,<sup>7</sup> have been stressed in numerous papers.

Along with these advantages, another, in the form of a definite reduction in the incidence of postoperative pulmonary complications following its use, is gradually being established. The figures that follow further substantiate this tendency.

This does not mean that the anesthetic is regarded as the sole cause of postoperative pneumonia. In fact, the pendulum has swung so far that now some authorities actually maintain, arguing from the fact that pulmonary complication follows as frequently after spinal anesthesia, that the anesthetic has nothing at all to do with this complication.

At St. Luke's Hospital we like to think that the anesthetic affects the results directly (1) through the degree of damage or excessive irritation produced in the respiratory tract and (2) through the degree of bodily depression produced by the anesthetic itself<sup>8</sup> (against that produced by the surgical measures) because of excessive relaxation and prolonged action. Whatever belief may be held regarding the cause of postoperative pulmonary complications, it is obvious that the irritated, mucus-laden respiratory tract is more likely to produce obstruction and atelectasis<sup>9</sup> than the unobstructed tract.

Judged merely from these two points, without recourse to statistical material, the advantage of cyclopropane over ether for depth of anesthesia sufficient for abdominal operation is obvious.

The direct effect of the anesthetic has been increasingly overshadowed in recent years by other factors, which, in the aggregate, probably do have a more important influence on results than the anesthetic itself. The factors concerned in the production of postoperative pulmonary complications are (1) the anesthetic agent, including the technic of administration and recovery, (2) the site of the operative procedure, (3) the duration of the operation, (4) sex, (5) the preoperative condition of the patient, including age, and (6) the depth of anesthesia. Contemplation of this list shows how broad the problem is, involving many aspects of anesthesia and surgery.

The way selected to present my statistical material on cyclopropane has been to correlate the observations with these six factors. This is the reverse of the usual procedure, which is to study the statistics and emerge with the conclusion that the foregoing six factors are important in the production of postoperative pulmonary complications. What is attempted here is to correlate the specific properties of this anesthetic, through the factors mentioned, to the problem under consideration.

## THE AGENT

In the twenty-five month period ended Aug. 1, 1937, cyclopropane anesthetic had been administered 1,333 times in my own practice, in cases which were subsequently observed and studied. Thirteen complications developed, to make an incidence of 0.97 per cent.

1 Lucas G. H. W. and Henderson V. E. A New Anesthetic Gas. *Cyclopropane*. *Canad. M. A. J.* **21**: 173 (Aug.) 1929.

2 Waters R. M. and Schmidt E. R. *Cyclopropane Anesthesia*. *J. A. M. A.* **103**: 975 (Sept. 29) 1934.

3 Kurtz C. M., Bennett J. H. and Shapiro H. H. *Electrocardiographic Studies During Surgical Anesthesia*. *J. A. M. A.* **106**: 434 (Feb. 8) 1936.

4 Seevers M. H., Meek W. J., Rovensine E. A. and Stiles J. A. A Study of Cyclopropane with Especial Reference to Gas Concentrations, Respiratory and Electrocardiographic Changes. *J. Pharmacol. & Exper. Therap.* **51**: 1 (May) 1934.

5 Neff W. B. and Stiles J. A. Some Experiences with Cyclopropane Anesthetic with Special Reference to the Diabetic Patient. *Canad. M. A. J.* **35**: 56 (July) 1936.

6 Seevers M. H., De Fazio S. F. and Evans S. M. A Comparative Study of Cyclopropane and Ethylene with Reference to Body Saturation and Desaturation. *J. Pharmacol. & Exper. Therap.* **53**: 90 (Jan.) 1935.

7 Rovensine E. A. *Cyclopropane Anesthesia in Thoracic Surgery*. *Anesth. & Analg.* **14**: 270 (Nov. Dec.) 1935. Eversole U. H. and Overholt R. H. *Anesthesia in Thoracic Surgery with Special Reference to Cyclopropane*. *J. Thoracic Surg.* **5**: 510 (June) 1936.

8 Henderson Landell. Atelectasis, Massive Collapse and Related Postoperative Conditions. *Bull. New York Acad. Med.* **11**: 639 (Nov.) 1935.

9 Coryllos, P. N. Postoperative Pulmonary Complications and Bronchial Obstruction. *Surg. Gynec. & Obst.* **50**: 795 (May) 1930.

Waters, Bennett and Taylor<sup>10</sup> reported an incidence of 0.95 per cent after 5,889 administrations

Several reports on postoperative complications following cyclopropane anesthesia have been gathered and are summarized in table 1. The results are compared to those following the use of older anesthetics, chiefly nitrous oxide-ether. The comparison, with an occasional exception, is favorable to cyclopropane.

This statistical table is considered important to this paper and warrants further comment about postoperative complication statistics in general.

One observation often made is that the more exacting a study becomes the higher the incidence is found to be. For instance, King<sup>11</sup> found at the Massachusetts General Hospital in the first year of his extensive studies that, amazingly enough, only 44 per cent of the pulmonary complications actually present found their way to the discharge sheet (from which most perma-

given institution the higher the figures become, and Cleveland<sup>14</sup> showed that as the figures become higher in each succeeding year the incidence of obscure postoperative "reactions" diminishes.

Therefore, with occasional exceptions, the incidence after ether is so much higher than after cyclopropane that it raises the question of the accuracy of record keeping in the cases in which cyclopropane is used. This criticism, however, does not hold. The chief source of mass statistics on cyclopropane is the University of Wisconsin. The methods of record keeping there have been explained in detail<sup>15</sup> and are unsurpassed anywhere. The other data given in table 1 were compiled from a small number of cases, with the resulting likelihood of minimizing error. Furthermore, if the report from this institution possesses any merit, one reason should be that the idea of reporting the results of pulmonary complications was considered

TABLE 1—Comparison of Cyclopropane and Ether

Reference	Ether				Cyclopropane			
	Total Cases	Complications, Per centage	Abdominal Operations	Complications, Per centage	Total Cases	Complications, Per centage	Abdominal Operations	Complications, Per centage
This series								
Waters, Taylor and Bennett <sup>10</sup>	2,431	1.82			1,333	0.94	626	2.07
Bogan J. B. <i>Anesth. &amp; Analg.</i> 15: 275 (Nov-Dec) 1936					5,889	0.95		
Moffitt J. A., and Meehling G. S. <i>Anesth. &amp; Analg.</i> 15: 225 (Sept-Oct) 1936					315	0	172*	0
Griffith H. R. <i>Anesth. &amp; Analg.</i> 14: 353 (Nov-Dec) 1935					300	0.67	109	1.8
Wiggin S. C. <i>Anesth. &amp; Analg.</i> 17: 105 (May-June) 1936	1,93	0.56	6.0*	1.04*	1,105	0.04		
Ryan, T. J. <i>Hyperventilation in Abdominal Surgery</i> J. A. M. A. 107: 267 (July 20) 1936			411	1.70				
King <sup>11</sup>		3.70†	1,012‡	12.2‡				
		5.20						
		6.80	1,108	13.1				
Gray <sup>12</sup>			2,468	4.3				
			3,153	6.2‡				
Watter Leonid. <i>Anesth. &amp; Analg.</i> 17: 22 (Jan-Feb) 1936			1,455	7.0‡				
Fuller C. J. <i>Lancet</i> 1: 115 (Jan 18) 1930	1,478	8.30						
Ellason and McLaughlin <sup>13</sup>	7,326	1.68						
Cleveland <sup>14</sup>	1,940	3.30						
Whipple <sup>15</sup>	2,719	2.00						

\* Approximate

† Definite postoperative pneumonia

‡ Different years

§ Trendelenburg position postoperative

¶ Normal position postoperative

|| Mostly abdominal operations

nent hospital records are compiled). His over-all incidence after correction ranged from 3.7 per cent in 1929 to 6.8 per cent in 1931. Against these figures, in another report from a nearby hospital the incidence was found to be only 0.56 per cent. The difference for abdominal operations alone in these two reports was even greater. Possibly the later figures were made from the record room figures alone.

Whipple<sup>12</sup> reported somewhat the same experience as did King. At the Presbyterian Hospital in 1914 and 1915, when no special study of pulmonary complications was in progress, forty-one cases were uncovered. In the following two years, during a special study, ninety-one cases were found. His over-all incidence was found to be 2.6 per cent. One year later, the special study being continued, it was 3.3 per cent (Cleveland). Ellason and McLaughlin<sup>13</sup> stated that each succeeding year the study is carried on in a

even before the first administration of the new anesthetic was performed, and subsequent observations were made with that intention in view. Personal records and observations have here also increased the number of complications uncovered over those reported on the discharge sheet.

Ether was required to fortify the action of cyclopropane in many cases, particularly during the early months. The decrease in the amount of ether used has been steady. The increase in pulmonary morbidity resulting from the addition of ether is shown in table 2.

As surgeons become more familiar with operating with the patient under cyclopropane anesthesia less ether is requested. One great advantage (from the basis of pulmonary morbidity) of cyclopropane is that when it is used muscles do not completely lose their tone. Respirations are so quiet however, that "pushing" in the abdominal field causes little trouble except at the beginning before pads are placed. Unfortunately, any trouble at the beginning usually causes the surgeon

10. Taylor I. B., Bennett J. H. and Waters R. M. *Anesthesia at the Wisconsin General Hospital. Anesthetic Methods and Postoperative Respiratory Complications.* *Anesth. & Analg.* 16: 198 (Jul-Aug) 1937.

11. King D. S. *Postoperative Pulmonary Complication. A Statistical Study Based on Two Years' Personal Observation.* *Surg. Gynec. & Obst.* 56: 43 (Jan) 1933.

12. Whipple A. O. *A Study in Postoperative Pneumonitis.* *Surg. Gynec. & Obst.* 26: 29 (Jan) 1918.

13. Ellason E. L. and McLaughlin Charles. *Postoperative Pulmonary Complication.* *Surg. Gynec. & Obst.* 55: 716 (Dec) 1932.

14. Cleveland M. *Further Studies in Postoperative Pneumonitis.* *Surg. Gynec. & Obst.* 28: 282 (March) 1919.

15. Roven time E. A. *A Method of Combining Anesthetic and Surgical Records for Statistical Purposes.* *Anesth. & Analg.* 12: 122 (May-June) 1934. Roven time E. A. and Taylor I. B. *Postoperative Respiratory Complications. Occurrence Following 7,874 Administrations.* *Am. J. M. Sc.* 191: 807 (June) 1936.

to request ether immediately. Forbearance for the first two or three minutes will usually allow considerable diminution in the amount or, frequently, the entire elimination of ether. The advantage of this lies in the quicker elimination of the anesthetic (hypoventilation consideration) and the reduction of irritation in the respiratory tract (obstruction consideration).

The technic of administration has been chiefly that of continuous flow,<sup>16</sup> with absorption of carbon dioxide. Waters in numerous papers has established the value of the absorber.<sup>17</sup> The advantages of a controlled and conditioned atmosphere with minimal heat loss and shock has a distinct bearing on pulmonary complication.

The continuous flow method of administration affects results only through preserving a higher percentage of inert gas (nitrogen) in the respired mixture by the use of a partially distended bag instead of a full one. Recently the routine technic of administration used at St. Luke's has involved the regular addition of inert gas, chiefly helium, to the anesthetic mixture. This problem, the relationship of nitrogen and other inert gases to pulmonary complications, has been extensively discussed elsewhere by Jones and me.<sup>18</sup>

Features of the recovery period emphasized include the immediate placing of the patient on his side on the stretcher and in bed. The matter of position has been stressed recently at the Mayo Clinic<sup>19</sup> among other places, where the Trendelenburg position has been used postoperatively to increase drainage of the pulmonary tract as well as to expedite venous return from the legs. Here at St. Luke's the side position is preferred as a better one for drainage, freedom for coughing and vomiting. Venous return from the legs is aided by the necessary motion required of the patient (actively and passively) in getting into and out of the position. The exact position has recently been described by Dill.<sup>20</sup> We have used it for eight years and copied it in the beginning from an anesthetist who had already used it many years.

Emphasis is also placed on the anesthetist accompanying the unconscious patient on the return to his

TABLE 2—*Postoperative Morbidity Following Cyclopropane Anesthesia With and Without Ether as a Supplement (From January 1936 to July 1937 Inclusive)*

Classification	Cases	Complications	Per centage
All abdominal operations	517	11	2.12
Abdominal operations—ether supplement	303	9	2.97
Abdominal operations—no supplement	214	2	0.93

Note. No ether was used when the operation was not abdominal except in five cases of hemorrhoidectomy in which it was given for the purpose of prolonging the relaxation of the sphincter muscle and in one other case under special circumstances.

room. One life, beyond any reasonable doubt, has been saved by this routine procedure.

Carbon dioxide by direct addition is not used. A mild hyperpnea during the latter part of the operation, utilizing the patient's own carbon dioxide by means of an open end extension to the respiratory tract, is usually produced.

16 Burford G. E. Continuous Flow Administration of Cyclopropane Anesth. & Analg. 15: 254 (Sept-Oct.) 1936.

17 Waters R. M. Carbon Dioxide Absorption from Anesthetic Atmospheres. Proc. Roy. Soc. Med. 30: 1 (Jan.) 1936.

18 Jones O. R. and Burford G. E. Massive Atelectasis Following Cyclopropane Anesthesia. Report of Cases and a Theory of Cause and Prevention. This issue p. 1092.

19 Gray H. K. Postoperative Pulmonary Complications and the Postoperative Use of the Trendelenburg Position. Minnesota Med. 18: 273 (May) 1935.

20 Dill W. W. Postoperative Position. Anesth. & Analg. 16: 70 (Jan-Feb. supp. pages) 1937.

## THE SITE OF OPERATIVE PROCEDURE

In this series 626 of the 1,333 operations either were abdominal or otherwise involved the peritoneum (operations for inguinal and femoral hernias and kidney operations). The entire thirteen complications developed in these cases.

There was no complication in 707 cases of extra-abdominal operation. In our experience the problem of pulmonary complication following inhalation anesthesia for operations not on the abdomen has always been negligible. However, we do a minimal number

TABLE 3—*Comparison Between Individual Operations Done with Cyclopropane and Those Done with Other Anesthetics*

	Cases	Pulmonary Complications		Mortality Percentage of Morbidity
		Number	Per centage	
Stomach (pre-ent series cyclopropane)	23	5	21.7	40.0
Stomach (ward series no cyclopropane)	291	26	8.9	0.0
Gallbladder and duct (cyclopropane)	88	3	3.4	0
Gallbladder and ducts (ward series no cyclopropane)	487	70	14.1	1.0
Inguinal hernia (cyclopropane)	61	0	0	0
Inguinal hernia (ward series no cyclopropane)	927	74	7.6	0.8

of intracranial operations, which are considered to carry a high pulmonary morbidity.<sup>10</sup>

The main factor to which is attributed the high incidence of pulmonary complications following abdominal operations is the decreased ventilation and vital capacity of the lungs<sup>21</sup> subsequent to opening the peritoneum, together with the voluntary restriction of respirations because of pain subsequent to peritoneal irritation. In this regard the value of the technic of administration now used at St. Luke's Hospital<sup>18</sup> requiring the addition of inert gas to the anesthetic mixture and thus prolonging the absorption time of the gases in the hypoventilated or even completely static portions of the lung, is evident.

The other important point associated with the abdominal site of operation as a producer of postoperative complications is the increased depth of anesthesia that necessarily accompanies operations in this area. This will be discussed under depth of anesthesia.

For different types of abdominal operations the incidence of complications varies interestingly. Data on this phase, together with comparisons of results for specific operations from wards where cyclopropane is not used, are given in table 3. The facts are discussed later.

## DURATION OF OPERATION

The extreme importance of the duration of the operation has received insufficient attention. All persons concerned with the problem of postoperative pulmonary complications might well become familiar with the figures of Waters, Bennett and Taylor<sup>10</sup> (table 10 of their paper). These, based on 12,349 cases, show the incidence to increase from 2.9 per cent (all complications, major and minor) for an operation of one-half hour, through decided successive stages for each half hour the operation is prolonged, to 30 per cent for operations lasting from three hours to three and one-half hours. These figures

21 Churchill E. D. and McNeil Donald. The Reduction in Vital Capacity Following Operation. Surg. Gynec. & Obst. 44: 483 (April pt. 1) 1927. Muller G. P. Overholt R. H. and Pendergrass E. P. Postoperative Pulmonary Hypoventilation. Arch. Surg. 19: 1322 (Dec. pt. 2) 1929.

show a continuation of the tendency established a year earlier, reported by Rovenstine and Taylor<sup>15</sup> Their figures showed the incidence for operations lasting one and one-half hours to be double that for operations lasting one hour At two hours the incidence tripled that at one hour

Evidently the pendulum has swung too far to the other side, away from the incision of "an inch and a half in a minute and a half"

In the present series, the average duration of anesthesia in the thirteen cases in which complications developed was one hour and thirty-eight minutes In only one of the thirteen cases did complications develop after an operation lasting less than one hour This fact was outstanding Together with the high incidence of complications following prolonged operations on the stomach, reported in table 3, it caused us to inquire whether the incidence of morbidity is not unduly increased with cyclopropane anesthesia in operations of a prolonged nature, at least over the otherwise very low incidence for this anesthetic The average duration of anesthesia in the five cases in which complications developed after operations on the stomach was two hours and one minute, while morbidity for the entire group of operations on the stomach was 21.7 per cent

#### SEX

Mark Twain might better have said of sex, at least in relation to anesthesia, what he said of the weather, that "everybody talks about it but nobody does anything about it" A suggestion is here advanced for doing something about it

Eliason and McLaughlin,<sup>13</sup> King,<sup>11</sup> Brock-- and others have written of the greater incidence of complications for males than for females Eliason and McLaughlin showed that 70 per cent of their cases occurred in males King found complications twice as frequently in males Brock reported sixty-two of eighty-five cases in males

It is unquestioned that males show a greater predisposition to pulmonary complications after anesthesia The approximate figure is more than two to one King went further to say that sex, with the site of operation, is the most important predisposing factor to postoperative pulmonary complications

It is also unquestioned that the administration of anesthetics to males is more difficult than to females Difficulty of induction has been shown by Guedel<sup>23</sup> to result largely from an elevation of the metabolic rate The metabolic rate represents the degree of reflex irritability and oxygen want It represents a fair approximation of the depth of anesthesia that must be traversed before the stable planes of third stage anesthesia (Guedel classification) are reached The difficulty of induction disappears as the metabolic rate is brought down The greater the depth to be traversed the greater is the likelihood of an uneven, struggling induction

In the first place, metabolism in male tissue is the more active, producing on the average 40 calories per square meter body surface per hour, to 37 calories for female tissue Furthermore, muscular action, once initiated, is much more intense in males This results in subsequent derangement in the anesthetic atmosphere through losses and subsequent additions of the anes-

thetic, usually, influenced by the behavior of the patient, in too high concentration This in turn leads to an uneven, irregular induction, a process which, in its optimal form, should be a smooth progression both of succeeding stages in the depth of anesthesia and of increasing concentrations of the anesthetic in the respired atmosphere

In practice the difficulty of induction of a premedicated male is about equal to that accompanying the induction of an unpremedicated female A heavily (properly) premedicated male is looked on as no more difficult than the average female The unpremedicated male there is no excuse for

What I propose to do about sex then is to (1) increase the preliminary medication of males enough to bring them to the operating room almost asleep, with metabolic rates greatly depressed, and as nearly as possible insusceptible to the stimuli of their surroundings, the medication being given far enough ahead (for instance, one and one-half hours for morphine) to have reached its maximum effect before the anesthesia is started and to be wearing off as the anesthesia progresses, and (2) to use cyclopropane, the rapid induction of which, when desired, takes effect with a minimal amount of stimulation, muscular activity and subsequent metabolic elevation

This may be a too didactic treatment of the controversial subject of heavy preliminary medication, the argument against which I have chosen to avoid

In this series seven males and six females had pulmonary complications The total number of females operated on was greater than that of males, but the incidence of complications in males was still nothing like 2 to 1 Nor has universal acceptance of heavy preliminary medication for males as yet been achieved

#### PREOPERATIVE CONDITION OF THE PATIENT

It has long been observed that elderly, debilitated, septic or acutely ill patients are more prone to postoperative complications Waters, Bennett and Taylor<sup>10</sup> have recently given statistical evidence on this point They showed that a preoperative estimate of the patient as a risk checked closely with the postoperative development of complications

In this series, however, no marked confirmation of these facts was obtained No routine preoperative estimate of all patients was made Five of the thirteen patients who had complications were found to be good risks, and only two exceeded 50 years of age These observations call further attention to the possibility that pulmonary complications after cyclopropane anesthesia depend on other factors, such as physical differences in the anesthesia atmosphere,<sup>18</sup> rather than on the routine ones so clearly established for other anesthetics

#### DEPTH OF ANESTHESIA

On the important subject depth of anesthesia, surgeons and anesthetists sometimes disagree

The only statistical information available (again from Waters, Bennett and Taylor<sup>10</sup>) shows complete confirmation of the long held belief that pulmonary complications increase as the depth of the anesthesia increases

The value of relaxed abdominal muscles and quiet respirations is obvious to all concerned It should be more generally appreciated, however, that increase of the former through deeper anesthesia does not produce the latter Increased depth produces intercostal paralysis and marked diaphragmatic excursions, with

<sup>22</sup> Brock, R. C. Postoperative Chest Complications. A Clinical Study. *Guy's Hosp. Rep.* 86: 191 (Jan April) 1936  
<sup>23</sup> Guedel, A. E. Anesthesia. A Teaching Outline. Preparation of the Patient and Mechanism of Varying Anesthesia Requirements. *Anesth. & Analg.* 15: 157 (July Aug.) 1936

resulting increased motion of the abdominal contents. This problem lately has been approached from another angle, with some success.<sup>24</sup> Apneic periods are deliberately produced and maintained by artificial respirations, with marked reduction in abdominal motion.

The implications of deep anesthesia are broad and should be generally understood and carefully weighed.

Guedel<sup>25</sup> stated that relaxed vascular (smooth muscle) tone accompanies marked loss of skeletal muscle tone from anesthesia paralysis. This results in impaired circulation and a tendency to shock. He estimated that to carry a patient fifteen minutes in lower third plane anesthesia is more depressing than to carry him two hours in the first plane.

Henderson<sup>8</sup> called attention to the loss of tonus, with resulting venous stasis and diminished return of blood to the heart, that accompanies deep anesthesia. Actual measurements of intramuscular pressure, which is con-

One outstanding difference (among others not directly related) in the conditions surrounding these two groups is the increased depth of anesthesia necessary for abdominal work. In this series at least eleven of the thirteen patients with complications were brought to deep third stage anesthesia during the course of the operation.

Until recently the value of an anesthetist was determined by his ability to produce and maintain deep anesthesia. Considerably more thought is now being given to this factor and its relationship to the expansive problem of postoperative pulmonary complications, as outlined here, especially in the light of results following cyclopropane anesthesia. The great advantage of cyclopropane is that it produces a certain degree of muscular relaxation which only rarely can be exceeded. This property has in some instances initiated a tolerance for incomplete relaxation where it did not exist pre-

TABLE 4—Summary of Thirteen Cases in Which Complications Developed

Diagnosis	Age	Sex	Pulmonary Complication	Day of Onset	Minutes of Anesthesia	Result and Miscellaneous Information
Appendectomy acute appendicitis	26	F	Atelectasis (slight)	Day of operation	60	Lungs clear forty eight hours cured
Polya's resection of stomach	40	M	Atelectasis (severe)	Day of operation	140	Lungs clear forty eight hours cured
Cholecystectomy exploration of common duct	48	M	Embolus pneumonia	13	70	Cured sudden onset with hemoptysis
Second operation fifth day after spinal anesthesia for Polya's resection of stomach intestinal obstruction freeing adhesions of stomach	40	F	Embolus pneumonia	16	70	Cured patient out of bed at onset of pulmonary symptoms
Appendectomy acute appendicitis	43	M	Broncho pneumonia	1	82	Cured acute pharyngitis and chest rales preoperatively
Resection of stomach	50	M	Broncho pneumonia or atelectasis	3	170	Improved long stormy postoperative course with indefinite chest signs and x-ray appearances
Appendectomy acute appendicitis	39	M	Broncho pneumonia	8	78	Cured
Hysterectomy appendectomy	40	F	Broncho pneumonia	1	135	Cured long difficult hysterectomy plus injury to bladder
Cholecystectomy	50	F	Pneumonia	5	90	Cured postoperative course marked by phlebitis and infection of wound
Hysterectomy salpingo oophorectomy	36	F	Pneumonia	6	90	Cured phlebitis developed on the fourteenth postoperative day second pneumonia right apex eighteenth postoperative day
Polya's resection of stomach bleeding ulcer	46	M	Pneumonia	3	96	Died ninth postoperative day hemoglobin from 32 to 45 per cent
Resection of stomach bleeding ulcer	38	M	Pneumonia?	2	120	Died seventh postoperative day diagnosis of pneumonia not established no x-ray examination continuous vomiting
Cholecystectomy	60	F	Atelectasis	1	45	Lungs clear in three days good recovery

cerned with venous return, have been recorded.<sup>26</sup> The readings showed a decrease from 73 mm (average) of water before operation to 48 mm (average) after anesthesia and operation. It can readily be seen that this and the preceding factor together form a vicious circle and hasten shock. Henderson<sup>8</sup> further stated: "The respiratory center exerts at times a dominating control not only over respiratory muscles but over the entire musculature. Profound anesthesia may stop respirations and abolish tonus. The demand of the surgeon for extreme relaxation increases the tendency to serious postoperative sequelae."

With regard to depth of anesthesia, the contrast between the incidence of pulmonary complications developing after abdominal operations and after non-abdominal operations in this series is interesting. 626 abdominal operations, 2.07 per cent, and 707 non-abdominal operations, none.

24 Guedel, A. E. and Treweek, D. N. Ether Apneic Anesth. & Analg. 13: 263 (Nov. Dec.) 1934. Burford, G. E. Utilization of Anesthesia Apneic Anesth. & Analg. 16: 108 (March April) 1937. Waters?

25 Guedel, A. E. Anesthesia: A Teaching Outline. Anesthetic Depths, Surgical Reflexes, Stages and Operations. Anesth. & Analg. 15: 120 (May June) 1936.

26 Henderson, J. and Oughterson, A. W. Greenberg, L. A. and Searle, C. P. Muscle Tonus, Intramuscular Pressure and the Venopressor Mechanism. Am. J. Physiol. 114: 261 (Jan.) 1936.

viously. If this tendency receives further impetus it will have the backing of the sound arguments of physiology.

#### ADDITIONAL FACTORS

A few matters not included under the preceding six headings remain to be discussed.

Table 4 shows a summary of the facts on which this study is based. The column "Miscellaneous Information" shows that possibly one or two of the cases might have been omitted. On the other hand, another case, in which the complication was undiagnosed for many months after its occurrence and ran its entire course of alarming symptoms in the operating room within twenty-five minutes of the operation, the patient showing no pulmonary morbidity on return to his room, was not included. This case has been reported elsewhere.<sup>18</sup> Two cases of sudden death (sixth and eighth postoperative days) were treated as vascular accidents. A case of mediastinitis subsequent to a traumatic accident accompanying endotracheal intubation with the patient under tribromethanol-cyclopropane-ether anesthesia was not included.

An interesting observation in connection with this table is the low mortality in relation to postoperative



pulmonary morbidity Only two of the thirteen patients died, the mortality thus being 15.4 per cent of the morbidity Other figures run from 20.3 (King, lowest year) to 32.5 (Eliason) and 33.3 (King, highest year) per cent

Data on the postoperative deaths occurring in this series during the first twenty-three months is given in table 5 No death was attributed to the anesthesia One death occurred on the table because of shock and massive hemorrhage

The Council on Pharmacy and Chemistry of the American Medical Association gave great weight to information on deaths in its report<sup>27</sup> on cyclopropane, withholding official recommendation chiefly because a series of 2,200 cases of Waters and Schmidt showed a mortality rate of 4.19 per cent compared to a rate of 3.99 per cent for other inhalation anesthetics<sup>28</sup> To others this information might seem less important, since a high mortality figure results, among other things, from such uncontrollable factors as the number of patients with inoperable or borderline carcinoma who are encountered and the number of days an appendix has been inflamed before the patient comes to operation

In another paper Jones and I<sup>18</sup> showed the slight but definite possibility of a sudden respiratory death

TABLE 5—Data on Deaths Following the Administration of Cyclopropane

Cases (23 months)	1,203
Total deaths	18
Mortality	2.90%
Time of death	
Day of operation	1
Day after operation	
1	2
2-3	3
4-7	11
2d week	1
Inter	14
Cause of death	
Pneumonia	2
Embolism	2
Hemorrhage	1
Infection	11
Uremia	1
Carcinoma	16
Others	2

following administration of cyclopropane (because of massive collapse of an entire lung) Three cases with autopsy gathered from various sources were reported This rare occurrence should be considered in any discussion of the pulmonary complications following cyclopropane anesthesia

#### SUMMARY

In an attempt to correlate the statistical material resulting from a study of 1,333 administrations of cyclopropane to the problem of postoperative pulmonary morbidity, the latter was shown to be a broad one involving many factors in anesthesia and in surgery Over some of these factors more control may exist than is at present being generally utilized

The outstanding observation is the relatively low figure both for the incidence of pulmonary morbidity and for the morbidity-mortality ratio following cyclopropane anesthesia This continues the trend established by others in previous reports

395 Riverside Drive

<sup>27</sup> Cyclopropane for Anesthesia Report of the Council on Pharmacy and Chemistry J. A. M. A. 106: 292 (Jan. 25) 1936.  
<sup>28</sup> Schmidt, I. R. and Waters, R. M. Cyclopropane Anesthesia Postoperative Morbidity in 2,200 Cases Anesth. & Analg. 14: 1 (Jan. 1936)

## MASSIVE ATELECTASIS FOLLOWING CYCLOPROPANE ANESTHESIA

REPORT OF CASES AND A THEORY OF CAUSE AND PREVENTION

OSWALD R. JONES, M.D.

AND

GEORGE EDGAR BURFORD, M.D.

NEW YORK

During the past two years, four deaths following quickly after the administration of cyclopropane have come to our attention Autopsy, when performed showed massive atelectasis of one or both lungs Furthermore, pulmonary complications following long continued cyclopropane anesthesia, especially for operation on the stomach,<sup>1</sup> have increased more than should be expected over the otherwise low incidence of such complications following the administration of cyclopropane<sup>2</sup>

These facts we regard as sufficient reason for a critical examination of the physical conditions involved in the administration of cyclopropane The relationship of these conditions to the development of massive atelectasis and the greater likelihood of subsequent development of partial atelectasis are considered in detail

In a paper of this nature we feel it necessary to state unequivocally our position on cyclopropane anesthesia

The manner of the introduction of this drug has been a model of careful statement and restraint Even though completely revolutionary in its field, the discovery of the anesthetic properties of cyclopropane by Henderson and Luens and the subsequent work of Waters and his associates progressed quietly, without any of the publicity and exploitation that have accompanied many lesser events

No one can witness the successful anesthetization of, operation on and subsequent recovery of patients taken directly from oxygen tents without realizing the unique value of cyclopropane anesthesia There are extreme cases to be sure, and far more valuable in the aggregate is the comfort of the large number of patients who receive the benefit of a quiet and pleasant induction The complete disappearance of movement with this anesthesia has prevented many of the bodily derangements due to the lack of oxygen The cerebral action of this gas and its ability to produce anesthesia deep enough for laparotomy are qualities which add to its importance

With full knowledge of the value of cyclopropane we propose in this paper a suggestion both for avoiding the rare tragedy of massive atelectasis and for reducing the already low figures for postoperative morbidity associated with this type of anesthesia

The circumstance producing complete atelectasis of a whole lobe has of recent years been assumed to be obstruction in the main bronchus followed by absorption of the alveolar gases behind the obstruction When the obstruction has become effective, the time required

From the Department of Anesthesia and the Medical Service of St. Luke's Hospital.  
1 Burford, G. E. Pulmonary Complications Following 1,333 Administrations of Cyclopropane this issue, p. 1097.  
2 Taylor, I. B., Bennett, J. H. and Waters, R. M. Anesthesia at the Wisconsin General Hospital. I. Anesthetic Methods and Postoperative Respiratory Complications. Anesth. & Analg. 14: 187 (July-Aug.) 1937.  
Griffith, H. R. Cyclopropane Anesthesia and 31,253 (Nov. Dec.) 1935.  
Boan, J. B. A Clinical Evaluation of Cyclopropane. After Use in 300 Surgical Anesthetics. Ibid. 15: 275 (Nov. Dec.) 1937.  
Moffitt, J. A. and Meckling, C. S. A Comparison of Cyclopropane with Other Anesthetics. Ibid. 15: 225 (Sept. Oct.) 1936.

for the development of atelectasis depends on the rate of absorption by the lung of the gases distal to the obstruction, provided the circulation in the lung is intact and the alveolar epithelium undamaged.

Coryllos and Birnbaum<sup>3</sup> have shown the great variation that exists in the rate of this absorption. The anesthetic gases tested were absorbed in a matter of minutes, as were oxygen and carbon dioxide. The inert gases nitrogen, hydrogen and helium required from eighteen to twenty-six hours for absorption, which even then for helium was not complete.

When one keeps these facts in mind, consideration of the physical conditions surrounding the administration of cyclopropane shows that, with occasional minor failures in technic, the development of massive atelectasis during the actual administration, with or without the presence of the bronchial plug considered so typical of this condition, is at least a possibility.

To develop this idea further, it is plain that, when the mask is placed on the patient's face at the start of cyclopropane anesthesia, the character of the atmosphere being breathed is at first little changed. As the bag fills with cyclopropane and oxygen the resulting mixture changes its physical characteristics in that now a considerably greater proportion of the atmosphere consists of the rapidly absorbable gases that have been added. Nitrogen now comprises considerably less than the normal 79 per cent of the atmosphere.

But during the course of an operation, as a result of various maneuvers, the content of the bag may be partly lost two or three times. Each loss represents a further dilution of the inert gas (nitrogen) content of the bag both by direct loss of nitrogen and by reduction of the remaining percentage through refilling with quickly absorbable oxygen and cyclopropane. Thus with unsatisfactory technic, or as the result of unavoidable losses through other means, the anesthesia atmosphere after a considerable time may be devoid of inert gas except for the small amount of nitrogen brought from the tissues to the lungs by the blood in simple solution and diffused into alveoli. As the blood normally contains about 1 per cent nitrogen, this amount after two hours would probably be very small and its effectiveness in the alveoli accustomed to a nitrogen tension of 80 per cent would be negligible.

The significance of this fact is considerable. Rovenstine and Lemmer<sup>4</sup> have shown that the time required for a comparable degree of absorption of 600 cc of gas by the lungs of dogs varies as follows: anesthetic and other gases—carbon dioxide one minute six seconds, oxygen one minute twenty-two seconds, nitrogen monoxide one minute forty-two seconds and ethylene two minutes two seconds, inert gases—nitrogen twelve minutes six seconds, hydrogen sixteen minutes twenty-two seconds and helium eighteen minutes six seconds.

Thus they emphasized, as did Coryllos and Birnbaum, the great rapidity of absorption of the anesthetic and active gases as compared with the inert "filler" gases. They observed under direct vision, after blocking the bronchus, that a specific degree of atelectasis appeared after the varying intervals stated for the different gases.

Toward the end of an operation the patient may be breathing an atmosphere made up almost entirely of rapidly absorbable gases, the inert gases having been lost during the anesthesia. When the alveoli of the lungs have lost the supporting properties of the inert gas nitrogen, conditions are present which favor atelectasis.

During an operation the patient's respirations are very quiet because of the preliminary opiates, the cyclopropane and the high oxygen content in the lungs. Together with these factors, which tend to set the stage for a possible collapse of the lung, there is the definite loss of body tonus resulting from the operation itself.<sup>5</sup> With long-continued shallow respirations, certain parts of the lungs, especially at the periphery, may not be ventilated at all. If, during the period of lack of ventilation, the gases in the resting alveoli consist of only rapidly absorbable oxygen and cyclopropane, it is possible that they may be completely absorbed before further ventilation takes place. Patches of atelectasis may thus develop without an obstruction in any portion of the bronchial tree.

This process, which may be termed creeping atelectasis, could go on, masked by the high oxygen content of the anesthesia atmosphere, until an entire lobe was involved. The first indication of it, beyond possibly an excessive amount of oozing in the operative wound, would appear when the mask was removed at the end of the operation. Then the lack of sufficient working surface of the lung, together with the lowered oxygen content of the inspired air and the increased demands of the body for oxygen on awakening, would soon make itself felt. The patient would show all of the symptoms of respiratory embarrassment, such as marked cyanosis, restlessness and, in some instances, cessation of breathing. The pulse would continue for a time even though the right side of the heart had the added burden of forcing blood through the partially or totally collapsed lungs.

Coryllos and Birnbaum,<sup>6</sup> in a discussion of this matter in 1932 (before the general introduction of cyclopropane), expressed the opinion that the presence of nitrogen in the air is a fortunate circumstance of nature and that without it general anesthesia would be impossible because of the ease and rapidity of the formation of atelectasis. This was discussed in a theoretical vein. But even then, and for years previous to that time, before the widespread acceptance of the soda lime carbon dioxide absorber<sup>7</sup> that accompanied the introduction of cyclopropane to medicine, probably the majority of anesthetics were given in an atmosphere seriously lacking in nitrogen. In the now obsolete method of administering gas or gas and ether, a rapid flow of the agent was run through the mask and out into the air in order to carry away the accumulating carbon dioxide. The nitrogen was of course washed out with the carbon dioxide.

Thus physical conditions propitious for immediate development of massive atelectasis without bronchial obstruction in a patient under anesthesia on the operating table have existed for years. Yet to our knowledge only the two cases reported by Bergamini and Shepard<sup>8</sup>

5 Henderson Vandell. Atelectasis Massive Collapse and Related Post Operative Conditions. *Bull. New York Acad. Med.* 11: 639 (Nov.) 1935.

6 Coryllos Pol N and Birnbaum G L. Studies in Pulmonary Gas Absorption. III. A Theory of Air Absorption in Atelectasis. *Am. J. Sc.* 183: 347 (March) 1932.

7 Waters R M. Carbon Dioxide Absorption from Anesthetic Atmospheres. *Proc. Roy. Soc. Med.* 30: 11 (Nov.) 1936.

8 Bergamini Herbert and Shepard L A. Bilateral Atelectasis (Massive Collapse) of Lung. *Ann. Surg.* 56: 35 (July) 1927.

3 Coryllos Pol N and Birnbaum G L. Studies in Pulmonary Gas Absorption in Bronchial Obstruction. II. The Behavior and Absorption Times of Oxygen Carbon Dioxide Nitrogen Helium Hydrogen Ethylene Nitrous Oxide Ethyl Chloride and Ether in the Lung. *Am. J. Sc.* 183: 327 (March) 1932.

4 Lemmer K E and Rovenstine E A. Rate of Absorption of Alveolar Gases in Relation to Hyperventilation. *Arch. Surg.* 30: 625 (April) 1935.



and a questionable one reported by Santee<sup>9</sup> had come to light before the introduction of cyclopropane. Probably the added factors of quiet respiration and a high alveolar oxygen content have accentuated the possibility with cyclopropane. Actually the blood nitrogen brought to the alveoli and that of the supplemental and residual air are better preserved under the present methods of administering cyclopropane than under most previous methods of handling the older anesthetics.

Coryllos, in another paper,<sup>10</sup> discussed the two cases reported by Bergamini and Shepard. He explained them on the basis of rapid absorption by the lung of the quickly absorbable anesthetic gases plus bronchial obstruction, although the pathologists three years earlier were careful to state that no obstruction was present.

Nevertheless, that a rapid respiratory death from massive atelectasis following the administration of cyclopropane occurs occasionally is beyond question. That pulmonary morbidity after prolonged administration of cyclopropane is unduly greater than the otherwise very low incidence of this complication following cyclopropane anesthesia is suggested by figures from this hospital to be published shortly. The speculation involved, pending further investigation with animals, is whether the process of development follows the outline given here.

The following four cases represent examples of massive atelectasis following cyclopropane anesthesia.

CASE 1<sup>11</sup>—An ambulatory white woman, aged 31, who weighed 170 pounds (77 Kg), was operated on for subacute pelvic inflammatory disease. Preliminary medication consisted of one-sixth grain (0.01 Gm) of morphine and  $\frac{1}{150}$  grain (0.0004 Gm) of atropine one hour before operation preoperatively. The administration of cyclopropane was started at 8:07. Three minutes later the patient was catheterized, and then she was draped for the operation. About eight minutes from the start of anesthesia, before the incision was made, the respirations gradually ceased and the pulse stopped. All attempts at revivification failed, and the patient was pronounced dead at 8:25. Attempts at resuscitation were continued for another half hour.

Autopsy showed bilateral massive collapse of the lungs. The trachea and the bronchi were clear and unobstructed. The right ventricle was dilated, and localized pelvic peritonitis was present.

This case, because of the marked bilateral atelectasis and the careful statement by the pathologist that no obstruction was present in the trachea or the bronchi, fits excellently into the general interpretation we have given to all these cases. However, the onset early in the course of the anesthesia is not typical, and the case differs in this respect from the others.

CASE 2<sup>12</sup>—A man, aged 20, was given cyclopropane by the endotracheal method for an operation on the stomach. The duration of anesthesia was one and one-half hours. The respiration volume was purposely maintained considerably below normal. The patient's condition was excellent at completion of the operation.

On his way back to the ward he showed cyanosis and labored breathing. Oxygen was called for, but the patient was dead within three minutes, before oxygen was made available.

Autopsy showed massive collapse of one lung.

CASE 3<sup>12a</sup>—A woman, aged 53, of average height and weight and in good physical condition, who was operated on for a

small femoral hernia, was given one-sixth grain (0.01 Gm) of morphine and  $\frac{1}{150}$  grain (0.0004 Gm) of atropine about ten minutes before anesthesia started. Anesthesia began at 8:40 and the operation at 8:45, at 9:07 the operation and the anesthesia ended. Both operation and anesthesia were uncomplicated. The patient left the operating room in good condition, but by the time her room was reached she was cyanotic and showed labored breathing. Her condition became rapidly worse. Epinephrine and manual artificial respiration were given without avail. She was pronounced dead at 9:25.

Autopsy showed that the left lung was entirely dark red and noncrepitant. The right lung was aerated but dark red and congested, with patches of atelectasis. The trachea and the bronchi contained a slight amount of mucus but no plugs or obstruction. The right auricle and ventricle were engorged with blood and enlarged to twice their normal size.

Case 4 is our own. It occurred during the early months of our experience with cyclopropane and established a permanently cautious approach toward this anesthetic. No such interpretation as is here given was then attached to the occurrence. It was presumed to be a matter of an overdose, but even then this interpretation did not seem entirely satisfactory to explain what occurred.

CASE 4—Mrs. E. F., aged 35, of average height and weight, was operated on for excision of a rectovestibular fistula. Preliminary medication consisted of one-fifth grain (0.013 Gm) of morphine and  $\frac{1}{150}$  grain (0.0004 Gm) of atropine given at 8 a.m. Anesthesia started at 8:45 and ended at 9:33 (duration forty-eight minutes) and was uneventful.

When the mask was removed the pulse rate was 94, the respiratory rate 14 and the color good. The patient was placed on her side on a stretcher and started for her room accompanied by the anesthetist. By the time the elevator was reached, approximately three minutes after removal of the mask, the respirations were shallow and more rapid. Some cyanosis had become evident. The pulse was regular and of good quality. When the patient's floor was reached, respiration had completely stopped and the cyanosis was definite. The pulse was still good. Artificial respiration by a modified Schafer method was begun (the patient was on her side on a narrow stretcher) and the patient rushed back to the operating room. Rapidly flowing oxygen was delivered by tube into the posterior part of the pharynx while manual artificial respiration was being continued and a tightly fitting mask made ready. There was no obstruction to respiration, and a fair tidal volume was maintained by artificial respiration. The pulse remained good for about three minutes after total cessation of the respiration, but during the fourth minute it began to fail and became irregular. Cyanosis by this time was maximal and the patient's condition desperate.

At this point the patient gave an enormous convulsive gasp. This was followed shortly by the resumption of shallow rapid breathing. There was no relief of cyanosis at first despite the breathing by this time of 100 per cent oxygen under efficient artificial respiration. Manual pressure on the bag which had a tightly fitting face piece was used to fortify the now resumed but shallow respirations. The pulse returned to an irregular but more forceful beat shortly after the resumption of spontaneous respiration. During another four minutes the cyanosis cleared somewhat, and in another minute the color was about normal. The patient regained consciousness in ten more minutes. Beyond a slight trace of cyanosis for the first twenty minutes, she had a completely uneventful recovery.

#### PREVENTION

If our speculation as to the cause of this type of postoperative massive collapse is correct, the obvious remedy is to add inert gas to the cyclopropane mixture. Neff and Stiles<sup>13</sup> have already suggested the advisability of diluting the cyclopropane atmosphere. They

<sup>9</sup> Santee, H. E. Bilateral Collapse of the Lung. *Ann. Surg.* 55:608 (April) 1927.

<sup>10</sup> Coryllos, P. N. Postoperative Pulmonary Complications and Bronchial Obstruction. *Surg., Gynec. & Obst.* 50:795 (May) 1930.

<sup>11</sup> Dr. Antonio Rottino of St. Vincent's Hospital gave permission to report the postmortem observations in this case.

<sup>12</sup> Quoted by permission of the publishers from Guedel, A. E. *Inhalation Anesthesia: A Fundamental Guide*. New York: Macmillan Company, 1937.

<sup>12a</sup> Dr. Thomas Dowd of the Hospital for Ruptured and Crippled gave us permission to report this case.

<sup>13</sup> Neff, W. B. and Stiles, J. A. Some Experiences with Cyclopropane Anesthesia with Special Reference to the Diabetic Patient. *Canad. M. A. J.* 5:35-36 (July) 1936.

did not connect the idea of dilution with the prevention of atelectasis but were attempting to prevent the development of shock in operations of three or four hours' duration. They used nitrogen and nitrous oxide as diluents.

For the purpose of preventing atelectasis, the addition of nitrous oxide would serve little purpose, but nitrogen would be effective. Lenner and Rovenstine have shown nitrous oxide to be absorbed almost as rapidly as oxygen and carbon dioxide.

The most useful addition to the cyclopropane atmosphere or other anesthetic atmospheres should be either hydrogen or helium. Both these gases, besides having more prolonged rates of absorption by the lung than nitrogen, have the added mechanical advantages for respiratory purposes inherent in light gases.

Helium for therapeutic purposes was conceived and introduced into medicine by Barach<sup>14</sup> and has since been adopted for anesthesia by Eversole,<sup>15</sup> among others. Eversole used helium in occasional cases chiefly to overcome spasm of the cords and other forms of respiratory obstruction. Saklad<sup>16</sup> advised its use in the treatment of failing respiration accompanying spinal anesthesia. Hydrogen, the lightest of all gases, may eventually prove to be the most valuable as an anesthetic, particularly if subsequent work confirms or enhances the claimed advantages of very light gases for respiratory purposes.

Helium, however, being light and inert and not explosive, seems at this time to be the best substitute for nitrogen in the replacement of that very necessary supporting gas in the pulmonary alveoli.

In Hershey's<sup>17</sup> experiments with animals, helium with oxygen in percentages of from 80 to 50 supported life as well as normal air over long periods and better than any other gas when mixed with adequate proportions of oxygen.

We therefore suggest the routine use of helium during the administration of cyclopropane or of any other anesthetic given in a high oxygen atmosphere that will tolerate dilution. Helium will not only replace the nitrogen which has been washed out of the alveoli and thus prevent the closure of the alveoli, with subsequent atelectasis, but will also bring to the anesthetic atmosphere the mechanical advantage of light gas for respiratory purposes.

The most convenient method for routine use is to establish anesthesia with a small bag content of gases.<sup>18</sup> Approximately enough helium to double the size of the bag is then added. This procedure leaves an adequate oxygen content in the bag. If one assumes that by this time the oxygen content in the bag approximates 60 per cent, the cyclopropane 25 per cent and other gases 15 per cent, then doubling the contents of the bag would leave the oxygen at 30 per cent. But with a low content a considerable amount of other gas and space enters into the calculations. Gas among the soda lime granules, in the face piece and in the supplemental and residual air is to be considered. The supplemental and residual air contains about 2 500 cc. The face piece and canister hold about 1 100 cc. Thus a total space of about

3,600 cc., besides the content of the bag, has to be considered. The individual spaces, while varying in their content of carbon dioxide, nitrogen, oxygen and cyclopropane according to their location, have in common, after the administration of cyclopropane, a higher than normal oxygen content.

Therefore, doubling the size of a "low" bag (containing to begin with about 1½ to 2 liters) is an effective way of supplying a sufficient percentage of helium to the mixture for the purposes suggested in this paper. When helium is used in this way and an allowance made for subsequent additions, the cost is kept low. This averages thus far in our experience about five cents per person anesthetized.

It is well to watch, however, for any sign of cyanosis after these additions. Any additions of helium after the first one should be considerably reduced in amount.

At present the additions of helium used at St. Luke's Hospital are unmetered. If it were desired, the amounts could easily be metered. But too great concern over the accuracy of the amounts added is pretense, as momentary consideration of the unknown and uncontrollable variables will show.

133 East Sixty-Fourth Street

## THE IDENTIFICATION OF GONOCOCCI IN COMPLICATIONS OF GONORRHEA

R. J. REITZEL, M.D.

AND

CORDULA KOHL, B.S.

SAN FRANCISCO

As a rule it is not difficult to establish a diagnosis of acute gonorrheal infection, however, the diagnosis of chronic lesions and of complications often remains obscure. The spread of the initial infection to the deeper tissues and to other parts of the body requires dependable and complete bacteriologic studies. Many of the complications of gonorrhea, such as arthritis, gonococcemia and endocarditis, as well as perigenital lesions, have often remained undiagnosed, largely because heretofore little attempt has been made to recover the organism. The reason for failure in diagnosis is twofold: (1) A complication may occur so late that the underlying disease is not suspected and (2) it is a general belief that the gonococcus is difficult to recover and to identify. It is our purpose to illustrate the necessity of making certain of the diagnosis when complications of gonococcal infections are involved and to show that bacteriologic procedures of proved value, which are relatively rapid and simple in performance, are now available for more widespread clinical use.

During the past five years we have recovered the gonococcus from blood, synovial fluid, pus from tendon sheaths, material from cutaneous lesions, peritoneal fluid, fluid from an abdominal cyst, material from ovarian and Bartholin glands and material from labial, periurethral and perianal abscesses. We have in many instances cultured the gonococcus from cervical, urethral or prostatic discharges when examination of smears gave negative or inconclusive results. In fourteen of twenty-five cases of proved gonorrheal arthritis

14 Barach, A. L. *Recent Advances in Inhalation Therapy in the Treatment of Cardiac and Respiratory Disease*. New York State J. Med. 37: 1095 (June 15) 1937.

15 Eversole, U. H. *The Use of Helium in Anesthesia*. Tr. Am. Soc. Anesthetists. April 1937.

16 Saklad, Meyer. *Spinal Anesthesia*. Am. J. Surg. 34: 519 (Dec.) 1936.

17 Hershey, J. W. *The Components of the Atmosphere and Synthetic Gases in Relation to Animal Life*. Anesth. & Analg. 13: 107 (May June) 1934.

18 Burford, G. E. *Continuous Flow Administration of Cyclopropane*. Anesth. & Analg. 15: 254 (Sept. Oct.) 1936.

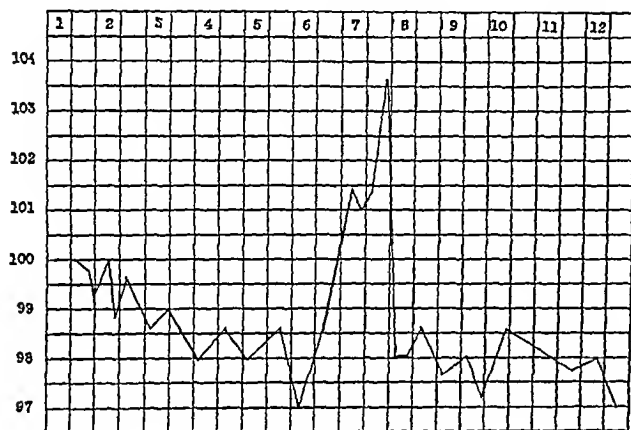
From the Department of Medicine, University of California Medical School, the San Francisco Department of Public Health and the University of California Division of the San Francisco Hospital.

the history did not indicate previous gonococcal infection, and in these cases either the routine smear was reported to be negative or no urethral or cervical discharge was obtainable. The diagnoses were made by recovering the organisms from blood (in seven cases), synovial fluid (in sixteen cases) or both (in two cases).

#### ARTHRITIS AND BACTEREMIA WITH SUBSEQUENT RECOVERY

Four patients had arthritis and bacteremia and subsequently recovered. In two of these the invasion of the blood stream appeared to be a transient complication which occurred suddenly in the course of moderately severe arthritis and was characterized by an abrupt rise and return to normal of the temperature. A report of one case is presented.

CASE 1—P. F., a housewife, aged 25, had been admitted to the hospital two years previously for cauterization of the cervix, bilateral salpingectomy, right oophorectomy and appendectomy, after which she became well. The present illness began with chills, fever, nausea and pains generalized throughout the body. When she was admitted to the hospital two days later, the temperature was 100 F and the pulse rate 90. There were



Temperature in case 1

tenderness, pain and slight swelling in the metacarpophalangeal joint of the first digit of the right hand and over the extensor tendons of the dorsal aspects of the left foot and the left knee. After the initial chill a hemorrhagic vesicle developed above the left external malleolus, which two weeks later showed a necrotic center containing pus. Three days afterward vesicles developed on the lateral aspect of both thighs and on the inferior aspect of the right internal malleolus. Two days later a small lesion developed over the left biceps.

On the seventh day after the patient's entry, coincidentally with a sudden rise in temperature to 103.6 F, a large lesion with a necrotic center appeared over the lateral aspect of the right foot, and blood taken at that time for culture showed a growth of gonococci. Within one week the lesion on the foot was 3 cm in diameter, and in its center was a flat pustule 1 cm in diameter, covered with a transparent epidermis which enclosed a small amount of rapidly drying purulent material. The material aspirated from the pustule did not show any organisms in the smear or by culture. The temperature returned to normal on the eighth day and continued so during the remainder of the patient's stay in the hospital, which was uneventful.

The other two attacks of gonococcal arthritis with bacteremia were more severe, however, both patients recovered. One case is of interest because of the difficulty in diagnosis and is presented in brief.

CASE 2—J. G., a married woman aged 52, was well until two days previous to entry, when she got wet while walking in the rain. During the following night she awakened from sleep with severe chills, profuse sweating and generalized pain in all her

limbs. On the following day she complained of pain in her left shoulder and right wrist. Her past history did not show any evidence of previous gonococcal infection. Early in her married life she had had one pregnancy, which had been terminated by abortion. At the time of entry she had known for three years that she had an abdominal tumor. She gave a history of menstrual irregularity and profuse bleeding for the past two years.

On pelvic examination the staff gynecologist found a mass which was considered to be a multilobular leiomyoma of the uterus or possibly an ovarian cyst. A later examination indicated that the patient might have an old adherent tubo ovarian lesion, but this was not thought to be the focus of her present infection. No vaginal discharge or cervical lesion was present. Smears and cultures of material from the cervix were negative for gonococci. At the time of entry, the patient had a temperature of 102 F and a pulse rate of 90. She had pain in her left shoulder and right wrist and pain and swelling of the left little finger. There were erythematous areas over the surface of the right foot. Five days after entry the left wrist and elbow and both ankles became involved with pain and swelling, and a red swollen fluctuant lesion appeared over the right ulnar surface of the forearm, this lesion, which disappeared after several days, was considered to be possibly metastatic.

On the patient's twenty-first day in the hospital, a blood culture was made, from which gonococci were recovered. On the twenty-eighth day about 3 cc of fluid was aspirated from the right wrist; a smear was not made, but gonococci were recovered by culture. At the time the blood culture was made, pustular cutaneous lesions appeared on the knuckles, the right elbow, one thumb and the soles of the feet. Four days later material from the pustule on the thumb was aspirated and cultured but gonococci were not observed. The patient was given pyrotherapy and recovered.

#### ENDOCARDITIS, BACTEREMIA AND ARTHRITIS

Gonococcal endocarditis is considered a rare complication. We have been successful in recovering the organism in five cases by culture during life, and in three cases the endocarditis was confirmed at necropsy. We believe that the incidence of gonococcal endocarditis, like that of gonococcal arthritis and gonococcemia, would be found to be greater than is suspected if, in clinical and postmortem studies, greater effort were made to recover the organism. We present a case of endocarditis which was unusual because the diagnosis was made by observing gonococci first in a cutaneous lesion.

CASE 3—S. P., a white man aged 48, became acutely ill with chills, fever and general malaise seven days before entering the hospital. On the second day of his illness a rash appeared on his body and extremities; on the third day several joints became painful, particularly the left wrist, which was swollen. He gave a history of having had gonorrhea at the ages of 16 and 18 but he had had no recent urethritis. Examination showed a maculopapular eruption over the extensor surfaces of the arms, thighs and buttocks and on the left elbow and the left thigh. Individually, the lesions varied considerably in size and in stage of development. There was marked conjunctivitis, there were hemorrhages in the gums on the labial grooves and in the mouth, nose and throat and the tonsils were swollen. The heart showed no abnormalities. The Wassermann reaction of the blood was positive. A small nodular mass was found along the course of the urethra; there was no discharge. The patient had a definite swelling, with redness and tenderness, of the left wrist.

On the day after his entry into the hospital, the left knee became painful. On the third day, a number of bullae appeared in the skin over the buttocks and the ankles; cultures of pus from one of these showed gonococci. These lesions later became pustular, leaving necrotic centers. Cultures of blood taken on the second and the tenth day showed growths of gonococci. The patient rapidly became very ill and almost comatose. His temperature remained between 101 and 103 F and the pulse rate was from 110 to 130. At no time was there any clinical sign of endocarditis and the spleen was not palpable.

The patient was given pyrotherapy, and after the first treatment his condition seemed slightly improved. However, on the thirteenth day in the hospital his temperature rose to 105.4 F, his pulse rate was 120 and his respiratory rate was 52. He expectorated thick, yellowish mucus and perspired freely. During the next day his condition became rapidly worse; his temperature was 105.8 F, his pulse rate 140 and his respiratory rate 40. Rales were present at both bases, and rigidity of the extremities and stiffness of the neck were marked. No murmurs were noted on examination of the heart, and the spleen was not felt. The patient died on the fourteenth day of his stay in the hospital.

Necropsy showed subcutaneous hemorrhages, the bullae in the skin had disappeared, and there were fresh hemorrhages in the abdominal muscles and lungs. There were adhesions around the ascending colon and around the liver. The capsule of the liver was thickened, no cirrhosis was evident and the gallbladder was normal. On gross and microscopic examinations, the urethra and the prostate were found to be normal. The spleen was moderately enlarged. There were no alterations in the myocardium; the mitral valve showed a slight endocarditic patch. There were aortic- verrucous endocarditis and typical acute endocarditis.

It is interesting that of the nine patients with gonococcemia four had cutaneous manifestations. In only one of three attempts were we successful in recovering the organism from cutaneous lesions. Clinically there appears to be a time relationship between the occurrence of bacteremia and the development of cutaneous manifestations. The cutaneous lesions that are discrete and have pustules or necrotic centers are probably metastatic, as was proved in case 3. Klein<sup>1</sup> reported the recovery of gonococci from the cutaneous lesions of a patient with gonococcal arthritis. This is, as far as we know, the only other case reported in the literature in which gonococci were recovered from the cutaneous lesions.

Mention is made here only briefly of the remaining four cases of gonococcal endocarditis, bacteremia and arthritis. In the case of C. M., on examination no evidence was found of gonococcal infection and clinically there was only presumptive evidence of gonococcal arthritis and endocarditis. One week before the patient's death the blood culture showed a growth of gram-negative diplococci which, morphologically and culturally resembled gonococci, although complete identification was not made. At necropsy acute mural endocarditis, with mycotic aneurysm of the left ventricle and secondary involvement of the mitral and aortic valves, was observed. A smear of pus from a mediastinal abscess showed gram-negative diplococci. In the case of L. D., the diagnosis was made from the clinical signs of endocardial involvement, a positive smear of material from the cervix and a positive blood culture; the postmortem diagnosis was diffuse verruciform aortic valvulitis, fibrinous purulent endocarditis, chronic endocervicitis, chronic salpingitis and purulent vaginitis. In the case of R. W., the blood culture was positive simultaneously with the development of clinical signs of endocarditis. No necropsy was made. In the case of S. B., the diagnosis was made by clinical evidence of gonococcal infection and endocarditis, together with repeatedly positive blood cultures.

#### BACTERIOLOGY

**Blood Cultures**—In culturing for gonococci, we used hormone-brain broth (hormone-heart-gelatin added to pieces of sterile brain, prepared by the medium depart-

ment of the University of California Hospital). Nearly all pathogenic bacteria can be recovered from blood and other specimens by its use. However, some of the strains of gonococci grew more rapidly in brain-heart infusion (Difco) with the addition of from 30 to 50 per cent of sterile ascitic fluid. Usually both broths were used, 10 cc of blood was inoculated directly into 200 cc of each broth which had been warmed previously. In one instance a specimen was collected into the hormone-brain broth at room temperature, and incubation was not begun for four hours after inoculation. Gonococci were recovered also from specimens of blood collected into 4 cc of sterile 2.5 per cent sodium citrate solution and brought to the laboratory for inoculation into the mediums. According to our experience, the optimum time for taking the specimen of blood is when the patient's temperature is at the peak of a rise.

Even though examinations of the original cultures were made daily by means of gram smears, the cocci often were not observed until the fourth or fifth day. When about 0.5 cc of the original culture was transplanted after twenty-four hours' incubation to 5 cc of ascitic fluid-infusion broth good growth of gonococci was found in the subculture after only twenty-four hours' incubation.

**Synovial Fluid and Other Exudates**—The technique for culturing synovial fluid was the same as that used for blood. Gonococci were recovered from two specimens of fluid or pus on swabs which had been kept at room temperature for from fifteen to eighteen hours; the growth seemed to be markedly retarded, however, since it did not appear before the fourth day of incubation. Second specimens from the same patients were inoculated directly, and growth appeared in twenty-four hours. Swab specimens must not be allowed to dry during the interval after they are taken and before the inoculation, placement in an incubator during this interim is entirely contraindicated because of the rapid desiccation. The organisms were seldom observed in the direct smears of the original fluid or pus.

For isolating the gonococcus from discharges containing mixed flora, such as specimens of cervical, urethral or prostatic discharges, pus from perianal abscesses and specimens of urine, the McLeod<sup>2</sup> oxydase method has proved satisfactory. A brief description of the method is as follows. Inoculation is made on 10 per cent heated blood agar plates; incubation is carried out in a jar containing 8 per cent carbon dioxide for eighteen hours and out of the jar for an additional twenty-four hours. Then the surface of the plate is flooded with a 1 per cent aqueous solution of tetramethyl-paraphenylenediamine hydrochloride, which is allowed to drain off. Colonies having a positive oxydase reaction will turn bright purple within a few seconds, other colonies will become light blue or remain unchanged. Colonies with a positive oxydase reaction which consist of gram-negative cocci and diplococci, are considered to be gonococci. The indicator allows the organisms to remain viable for thirty minutes, so that they may be picked off for further identification whenever this is indicated.

In our modification of the McLeod method, the medium employed is simpler and more adaptable for

<sup>1</sup> Klein, H. M. Studies on the Shwartzman Reaction. Hitherto Undemonstrated Antibiotics in Man. *J. Infect. Dis.* 52: 312-327 (Nov. Dec.) 1933.

<sup>2</sup> McLeod, J. W., Coates, J. C., Happold, H. C., Priestly, D. P., and Wheatley, B. Cultivation of the Gonococcus as a Method in the Diagnosis of Gonorrhea with Special Reference to the Oxydase Reaction and to the Value of Air Reinforced in Its Carbon Dioxide Content. *J. Path. & Bact.* 39: 221-231 (July) 1934.

use in small laboratories whose facilities do not permit the making of intricate mediums in small quantities. The procedure is as follows: 1. Enough brain-heart infusion (Difco) is added to brain-veal agar (Difco) to make the agar content 12 per cent instead of the usual 15 per cent. This medium is made up in double strength and sterilized in the usual manner. 2. Dehydrated hemoglobin (Difco) is made up in a 2 per cent solution as directed on the bottle and is sterilized. 3. An equal quantity of this heated sterile hemoglobin solution is added to the double strength melted agar, the mixture is then allowed to cool to 50 C., and the plates are poured. The plates should be used on the same day.

Gonococci appear to grow equally well on the two agars with or without the addition of the 8 per cent carbon dioxide. Usually the incubation under the increased carbon dioxide is eliminated, however, the plates are placed in a sealed jar for the first eighteen hours' incubation in order to give the medium an atmosphere which is increased in moisture content. Additional moisture is always kept in the incubator, the temperature for all the cultures for gonococci is maintained at 36.5 C.

**Identification of the Gonococci**—We relied for identification of the organisms on fermentation reactions and on agglutination with diagnostic serum. The preparation of the medium for the sugar fermentation reactions is as follows: A pure culture of the organisms is inoculated by means of a pipet, a broth culture being used, on plates containing sugar-free agar with a hormone base, 30 per cent sterile ascitic fluid, 1 per cent dextrose or maltose and 1 per cent Andrade's indicator. Growth usually appeared in twenty-four hours but fermentation was usually not in evidence before from forty-eight to seventy-two hours. Hiss serum water, which is often used to test fermentation reactions of streptococci and pneumococci, does not give satisfactory results, only one strain out of ten which were inoculated in it produced fermentation, although all gave reactions on the other mediums. These plates were not placed in jars but were incubated in the usual manner.

Agglutination with antigonococcus diagnostic serum confirmed the identification of sixteen strains. Dr. A. P. Krueger, associate professor of bacteriology, University of California, performed the agglutination tests.

#### SUMMARY

No attempt was made to carry out an intensive clinical or bacteriologic study or to present a complete bibliography. We have presented our results in the culturing of gonococci in gonorrhea and some of its complications such as endocarditis, bacteremia and other metastatic lesions. The bacteriologic procedures that we have outlined aided greatly in diagnosis and therefore were of clinical value in selecting proper therapeutic measures.

3. An excellent bibliography is contained in the Report of the Committee for Survey of Research on the Gonococcus and Gonococcal Infections, prepared by Ruth Doring Thomas and Stanhope Wayne Jones, supplement to the American Journal of Syphilis, Gonorrhea and Venereal Diseases, January, 1936.

**Store Food and Store Teeth**—Let us cease pretending that tooth brushes and tooth paste are any more important than shoe brushes and shoe polish. It is store food which has given us store teeth.—Hooton E. A. Apes Men and Morons, New York G. P. Putnam's Sons, 1937, page 263.

## Clinical Notes, Suggestions and New Instruments

### SERUM CARDITIS: THE MORPHOLOGIC CARDIAC ALTERATIONS IN MAN ASSOCIATED WITH SERUM DISEASE

EUGENE CLARK, M.D., NEW YORK

In a recent report from Bellevue Hospital<sup>1</sup> two instances were described in which patients received large doses of anti-pneumococcus serum and came to necropsy four and nineteen days, respectively, following signs of serum disease. The structural alterations in these cases consisted of proliferation of histiocytes in the mural and valvular endocardium and in the intima of the aorta, pulmonary and coronary arteries, accompanied by multiplication of the interstitial cells of the myocardium and other viscera. Necrotizing arteritis and periarteritis of the smaller coronary arteries was a prominent feature in one case. It was felt that the composite picture is unlike that of any disease heretofore described. The coexistence of these lesions with clinical evidence of serum disease

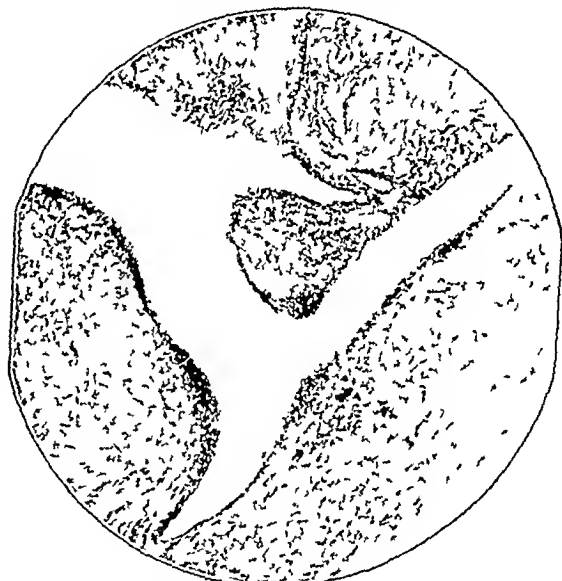


Fig. 1.—Section of the left ventricle showing dense diffuse cellular thickening of the endocardium over the columnar carneae.

and their similarity to those found in animals with protracted anaphylaxis induced by foreign serums, led the authors to suggest that these alterations are of hyperergic nature and related to the administration of foreign serum.

Recently, while studying the visceral lesions of anterior poliomyelitis in the Bellevue Hospital laboratories, Dr. Einar Gustafson<sup>2</sup> encountered a case from the 1931 epidemic which he called to my attention. This case offers further proof that structural alterations in the heart may accompany serum disease in man.

#### REPORT OF CASE

R. M., a white youth, aged 20, admitted to the Fourth Medical Division of Bellevue Hospital July 7, 1931, complained of hard, aching drowsiness and stiffness of the neck of four days' duration. Physical examination revealed rigidity of the neck, bilateral Kernig sign and incoordination and weakness of the

From the Department of Pathology and the Fourth Medical Division of Bellevue Hospital.

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right lower extremity. The temperature was 103 F, the pulse 112 and the blood pressure 114 mm of mercury systolic and 90 diastolic. The spinal fluid showed 180 cells with 76 per cent polymorphonuclear leukocytes and 24 per cent monocytes, culture of the spinal fluid was sterile and the spinal Wassermann reaction was negative.

Soon after admission the patient was apathetic, but in the next few days he became alert. July 11, right external rectus weakness and flaccid paralysis of all limbs more marked on the right were observed. During these four days the patient's temperature did not rise above 101 F and the pulse varied from 90 to 100 per minute. The spinal fluid cell count diminished and the cells were chiefly of the mononuclear type.

July 11, 20 cc of concentrated horse serum was administered intraspinally and an equal amount was given intramuscularly.

During the following week apathy returned, right lower facial weakness developed and breathing became thoracic in type. The temperature rose to 102.6 on the 13th and maintained a level or from 103 to 104 F, with the pulse between 120 and 130. The white blood count July 13 was 16,800 per cubic millimeter with 92 per cent polymorphonuclear leukocytes. July 18 it was 22,400 per cubic millimeter with 84 per cent polymorphonuclear leukocytes, 13 per cent lymphocytes, 2 per cent transitionals and 1 per cent eosinophils. A transfusion of 300 cc of whole blood was given July 14 without reaction. The spinal fluid remained sterile.

July 17 an erythematous rash was noted over the entire body, petechiae over the trunk and arms, edema of the left lid and marked enlargement of the cervical, inguinal and axillary lymph nodes. A blood culture taken at this time was sterile after five days' incubation.

July 18, tympanites and difficulty in respiration were noted. The patient was placed in a respirator. In the following twelve hours the pulse became weaker and irregular. The temperature rose to 107 F, the pulse became impalpable and death occurred July 19.

#### POSTMORTEM EXAMINATION

Necropsy was performed a few hours after death. Alterations were not observable by naked eye in the thoracic or abdominal viscera. The brain appeared unaltered, but the spinal cord showed congestion, edema and punctate hemorrhages.

*Microscopic Changes*.—Brain and Spinal Cord (described by Dr. Lewis Stevenson). Sections of the medulla, cervical and thoracic cord showed typical lesions of acute anterior poliomyelitis, with marked lymphocytic exudate about the blood vessels and in the substance of the anterior horns. The latter also showed necrosis of nerve cells and a few minute hemorrhages. There was a slight lymphocytic infiltration in the pia arachnoid.

*Heart*. Paraffin sections of three blocks of tissue removed from the left ventricle were available for study. There were no sections of the valves, larger coronary arteries or aorta.

The myocardial alterations were characterized by dense, diffuse, cellular infiltration and edema of the mural endocardium, particularly over the columnae carneae and the mouths of the thebesian veins (fig. 1). The lining endothelial cells were sometimes intact and sometimes invisible but there were no thrombotic deposits or vegetations. The cells were predominantly of the histiocytic type, oval, polyhedral or fusiform, varied in size from 10 to 40 microns and possessed abundant, lightly basophilic cytoplasm. A few lymphocytes and eosinophilic and neutrophilic polymorphonuclear leukocytes were also found. Accompanying this reaction in the endocardium was a focal infiltration of similar cells in the intermuscular connective tissue around the interfascicular arteries, capillaries and venules, between the muscle fibers and beneath the epicardium (fig. 2). Though the arteries and arterioles were frequently surrounded by histiocytes the walls of the vessels were unaltered. There were no lesions that resembled Aschoff bodies.

*Liver*. There was slight focal infiltration of histiocytes in the periportal areas.

*Kidneys*. Slight infiltration of histiocytes was visible around some of the glomeruli.

*Spleen*. There were several foci of hyperplasia in which large mononuclear cells with basophilic cytoplasm predominated.

*Lymph Nodes*. The architecture of the nodes was preserved but the sinuses were crowded with large mononuclear cells.

*Other Organs*. The lungs showed edema and congestion. The other viscera were not examined microscopically.

#### SUMMARY

A youth, aged 20 with acute anterior poliomyelitis affecting all limbs and the muscles of respiration died twelve days after the onset of the disease. Seven days before death, 40 cc of concentrated horse serum was administered. Two days prior to death signs of serum disease appeared. Postmortem study disclosed, in addition to the microscopic appearance of acute anterior poliomyelitis, diffuse infiltration of histiocytes in the subendocardial and connective tissues of the heart accompanied by focal infiltration between the muscle fibers.

#### COMMENT

According to Landon and Smith,<sup>4</sup> cardiac lesions of the nature exhibited in the case reported have not been observed in epidemic poliomyelitis. This, fortified by the absence of sepsis, and the similarity of these lesions to those observed in animals during protracted serum anaphylaxis,<sup>2</sup> and in the two previously reported cases of serum disease in human beings, lead to the



Fig. 2.—Section of the left ventricle showing cellular infiltration along the intermuscular tracts lining of thebesian veins and between the muscle fibers.

belief that the cardiac alterations in this case are morphologic reactions to horse serum. The existence of serum disease in this patient, as well as in the two patients previously referred to and the absence of these lesions in those serum-treated individuals in whom serum sickness did not develop,<sup>1</sup> support the suggestion that such alterations represent the morphologic expression of a hyperergic state associated with serum disease. The focal histiocytic infiltration of the liver and kidneys, although milder than in the two other cases, is probably of the same nature.

In the two cases described in the first report, antipneumococcus serum was given several times a day over seven and eleven days respectively, with a corresponding serum volume of 600 and 2,000 cc. The case here reported indicates, however, that this morphologic reaction may follow a single injection (combined intraspinally and intramuscularly) of a relatively small amount of serum (40 cc). The serum employed was concentrated horse serum which may be equivalent to many times its volume of serum refined for its specific immunologic properties.

The structural alterations in the case here reported differ from one of the other two in the absence of necrotizing arteritis.

<sup>4</sup> Landon, J. F. and Smith, L. W. *Poliomyelitis*. New York: Macmillan Company, 1934.

of the coronary arteries. It is not possible to determine the factors responsible for the occurrence of the latter lesion. In the case in which it was observed, death occurred nineteen days after the appearance of serum disease, whereas in the two other cases four and two days, respectively, elapsed between the appearance of serum disease and death.

Cases are too few to permit any conclusion concerning the functional significance of these lesions. In the three cases thus far studied, the underlying disease appears to explain the clinical phenomena and the fatal outcome.

400 East Twenty-Ninth Street

#### A CASE OF INTESTINAL HETEROPHYDIASIS OF MAN IN HAWAII

JOSEPH E. ALICATA, PH.D.  
Parasitologist, University of Hawaii

AND  
O. LEE SCHATTENBURG, M.D., HONOLULU, T. H.

Intestinal heterophyid infestation has been reported in man from various parts of the world including China, Japan, Korea, the Philippines, Egypt, and the Balkan states, in areas where parasitized fish is eaten raw or uncooked. Recently a case of heterophyidiasis has been discovered in man in Hawaii, and the source of infestation is believed to have been infested raw fish, possibly mullets, which the patient had eaten. This finding marks a new geographic endemic area for this group of parasites; this new distribution would have been expected because of the large number of Chinese, Japanese, and Filipinos who have migrated to Hawaii and because of the presence of melanoid snails and mullet which have been reported in other localities as serving as primary and secondary intermediate hosts respectively of these parasites. It is not surprising also to find human infestation in Hawaii since raw fish is customarily eaten by certain racial groups residing here.

Heterophyid flukes as adults are extremely small, often only about 0.5 mm long. Several species have been reported from man. *Heterophyes heterophyes* was the first member of this group, found by Bilharz in 1851 in the small intestine of a boy in Egypt; since then many other species have been reported from the intestinal tract of carnivorous mammals, birds, and fishes. In 1911 Kutsurata described *Metagonimus yokogawai*, which was the first of these flukes to be found in man in the Orient. Africa and Garcia<sup>1</sup> in 1935 reported the finding of *Monorchotrema taichui*, *Diorchotrema pseudocirrata* (= *Stellantchasmus falcatus*) and *Heterophyes brevicerca* in man in the Philippines; the first two species were also found in dogs.

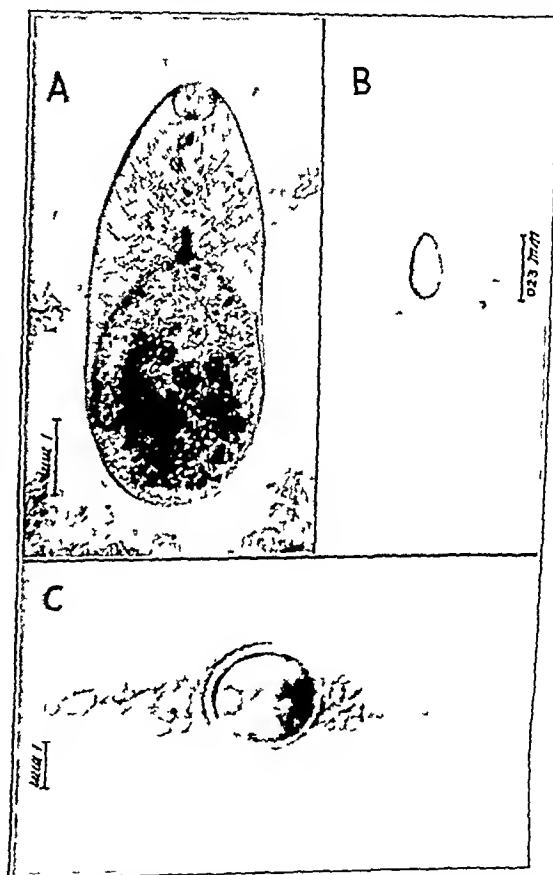
Heterophyids in man have been reported as causing little disorder, and the clinical symptoms due to their presence are often negligible. In 1935 Africa, de Leon and Garcia<sup>2</sup> reported that these flukes parasitize the intestinal mucosa and, because of an unbalanced parasitic relationship between the human host and these worms, the latter wander into the deeper layers of the intestinal wall, become imprisoned and die; the ova in the bodies of these flukes that degenerate are taken up by the lymphatic or blood streams and are carried to various parts of the body, including the brain and heart. Africa and his associates<sup>2</sup> have reported heterophyid ova in acute lesions of the myocardium of several individuals, and these ova were believed to be instrumental in bringing about fatal acute heart attacks; they also suggest that the cardiac beriberi often noted

in the Far East, where the eating of raw fish is common and heterophyid infestations are endemic, are possibly cases of cardiac heterophyidiasis.

#### REPORT OF CASE

A. N., a man, aged 26, Japanese, was referred to one of us (O. L. S.) June 27, 1937, for diagnosis. The patient was a trainer of polo ponies and worked on a ranch at Mokolei Island of Oahu, T. H. He was born and reared here and never traveled away from the islands. His past history indicated only a severe attack of influenza in 1918, lasting a few weeks, which was followed by a good recovery.

Six weeks before he was seen, diarrhea suddenly developed for which he could not account. When he continued to have from six to ten loose stools daily for several days he consulted a physician but apparently only symptomatic treatment was offered and gave him no relief. The diarrhea persisted for about three weeks during which time he lost his appetite, his body weight dropped from the average level of from 142 to 144 (64.4 to 65.3 Kg) down to 123½ pounds (56 Kg), and he had a corresponding loss in body strength during that time he had shown absence of urinary symptoms, nausea, vomiting, melena and fever. When first seen he was no longer having diarrhea.



A, adult heterophyid *Stellantchasmus falcatus* recovered from the intestine of a cat fourteen days following experimental feeding of an infested mullet. B, egg of the parasite found in the feces of the cat. C, encysted metacercaria of this fluke in the musculature of an infested mullet.

but complained of a nervous feeling and discomfort over the area corresponding to that of the colon and particularly the right upper quadrant. The pain was not acute but was constantly present as a discomfort which was not influenced by the intake of food, evacuation of the bowels or mechanical pressure. Inquiry into his habits brought out the fact that he was a moderate smoker and drank beer occasionally. His hygienic surroundings were good; he lived in a house fitted with modern equipment and his meals included fresh vegetables, milk, eggs and the like. The water supply was from an artesian well on the ranch. He also admitted further being fond of certain kinds of raw fish which he ate with his regular meals.

1. Africa, C. M. and Garcia, E. Y. Heterophyid Trematodes of Man and Dog in the Philippines with Descriptions of Three New Species. *Philippine J. Sc.* 57: 255 (June) 1935.

2. Africa, C. M., de Leon, W., and Garcia, E. Y. Heterophyidiasis. IV. Lesions Found in the Myocardium of Eleven Infested Hearts Including Three Cases with Valvular Involvement. *Philippine J. Pub. Health* 3: Nos. 1-2 (March-June) 1936. III. Ova Associated with a Fatal Hemorrhage in the Right Basal Ganglia of the Brain. *J. Philippine Islands M. A.* 16: 22 (Jan.) 1936.

3. Africa, C. M., de Leon, W., and Garcia, E. Y. Heterophyidiasis. II. Ova in Sclerosed Mitral Valves with Other Chronic Lesions in the Myocardium. *J. Philippine Islands M. A.* 15: 583 (Nov.) 1935. Intestinal Heterophyidiasis with Cardiac Involvement. Contribution to the Etiology of Heart Failures. *Philippine J. Pub. Health* 2: Nos. 1-2 (March-June) 1935.

also when he went into a beer hall for a drink he would frequently eat a "Japanese salad consisting of raw fish, raw lettuce and soya sauce. He did not know the kind of fish served in the beer halls but at the ranch he ate largely raw 'fresh water mullet and occasionally a local fish which he called 'Chinese cat fish'. He could not date the onset of illness with any particular intake of raw fish.

The patient's physical examination on the first visit was as follows: temperature 98.6 F, pulse, 70, blood pressure, 132 systolic 80 diastolic, weight 123½ pounds. The urine showed only a few scattered pus cells and a few shreds of mucus. A careful physical examination failed to reveal any other noteworthy changes. The clinical impression was that he harbored some intestinal parasite, possibly amebas, and he was advised to enter a hospital for a more thorough study. The following day he entered Queen's Hospital.

Further examination revealed the urine negative, stool negative for amebas, guaiac test negative for occult blood. Blood hemoglobin 75 per cent, red blood cells 4,956,000, white blood cells 9,100, polymorphonuclear leukocytes 47 per cent, eosinophils 2 per cent, small lymphocytes 44 per cent, basophils 7 per cent. The Weil-Felix test for typhus fever gave a negative agglutination in all dilutions. The Widal test gave a negative agglutination in all dilutions for B typhosus, paratyphosus A and paratyphosus B. Undulant fever agglutination was negative in all dilutions. The Wassermann and Kahn reactions were negative. The white blood count July 3 still showed a peculiar shift in the differential: white blood cells 7,100, polymorphonuclears 37 per cent, eosinophils 4 per cent, monocytes 12 per cent, small lymphocytes 47 per cent.

A gastro intestinal study revealed the following: Fluoroscopy of the chest was negative. Plain plates of the kidney, ureter, bladder and gallbladder were negative. A barium sulfate meal showed nothing unusual about the esophagus. The stomach was ptotic. No constant stomach or cap deformities could be found. At six hours there was no delayed emptying of the stomach. At twenty-four hours the colon was partially filled with barium, as was the appendix, which looked normal and was not tender to pressure. A barium enema was negative. X-ray diagnosis was negative, except for some colon irritability.

Studies of the stool were made daily, both from the normal evacuation and after saline purges. The presence of amebas was not found at any time, but small fluke ova from 0.023 to 0.025 mm long by 0.011 mm wide were noted (B in the accompanying illustration). With the finding of these ova he was put on a temporary starvation with purgation followed by 6 Gm of oleoresin of aspidium which was given July 6 in divided doses and with no toxic manifestations. He had several watery stools after treatment, and examination of these stools revealed several hundred tiny flukes about 0.6 mm long by 0.2 mm wide which although partially degenerated, could be identified as belonging to the genus *Stellantchasmus* and closely related if not identical with *Stellantchasmus falcatus* Ouyi and Nishio 1916 (syn *Diorchitrema pseudocirrata* Witenberg, 1929). Following one dose of aspidium the patient began to feel better and was relieved of further symptoms of distress over the colon, his appetite returned and he gained about 3 pounds (1,360 Gm) in the next week. Daily examination of the stool revealed a few ova for two days following the treatment which then disappeared entirely. July 15, when he was discharged from the hospital, the blood count had shown a distinct shift toward normal, being as follows: white blood cells 5,100, polymorphonuclear leukocytes 72 per cent, eosinophils 2 per cent, small lymphocytes 20 per cent, monocytes 6 per cent.

The finding of heterophyid flukes in the patient suggested that local mullet was the carrier of the parasite. Examination of six mullets (*Mugil cephalus*) caught in an enclosed ocean fish pond near Waialua Bay, Oahu, revealed all to be infested with a large number of fluke larvae (metacercariae) encysted in the musculature (C in the illustration). Five additional mullets, caught in the ocean in the Waialua Bay, were also found to be infested, one mullet weighing 265 Gm was so heavily infested that in 1 gram of muscle there were counted

263 larvae. The cysts in the musculature measured about 0.25 mm long by 0.19 mm wide and enclosed a larva partially coiled on itself. Larvae that were dissected from cysts measured about 0.27 mm long by 0.12 mm wide and resembled morphologically the adult flukes recovered from the stool of the aforementioned patient with the exception of size and development of the genitalia. This finding was verified by the feeding of the raw mullet to three young cats. In the course of two days diarrhea developed in all the cats, and on the fourth day one died, at autopsy there were found in the small intestine a large number of heterophyid flukes (*Stellantchasmus falcatus*) about 0.3 mm long with developing ova in the uterus. A daily fecal examination of the other two cats revealed eggs of the flukes passing out on the tenth day following experimental feeding. One of these two cats was killed fourteen days following experimental infestation and a large number of the adult heterophyid flukes (A in the illustration) about 0.55 mm long were recovered from the intestinal tract.

#### SUMMARY

- 1 This is the first case of heterophyid fluke in man reported from Hawaii and suggests a new endemic focus of the disease.
- 2 The source of the infestation was definitely traced to a species of mullet which abounds in the waters about Hawaii and which is frequently used for food.
- 3 Animal experimentation proved the pathogenicity of this fluke for cats.
- 4 A cure was apparently effected in the human being by the simple use of oleoresin of aspidium.

#### DUODENAL ULCER AS A CAUSE OF DEATH IN A CASE OF MENINGOCOCCIC MENINGITIS

CARL A. HARTUNG, M.D., CHATTANOOGA, TENN., AND JOSEF IWARKANY, M.D., CINCINNATI

Duodenal ulcer in childhood has frequently been described. The literature has been reviewed by Holt<sup>1</sup> by Veeder<sup>2</sup> and in 1919 by Theile,<sup>3</sup> who collected 125 cases. Although additional cases<sup>4</sup> have been reported since Theile's monograph appeared his classification of the subject can still be considered valid. The majority of ulcers in early life occur in newly born infants suffering from melena, neonatorum and in marantic infants. In older children trauma of the gastroenteric mucous membranes

From the Departments of Pathology and Pediatrics, University of Cincinnati College of Medicine and the Contagious Disease Wards of the Cincinnati General Hospital.

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burns, nephritis, uremia and infections may lead to secondary ulceration of the gastro enteric tract. Ulcers due to infection include those associated with tuberculosis, syphilis, typhoid, pneumonia, smallpox, chickenpox, scarlet fever, diphtheria, measles, erysipelas, pemphigus and appendicitis and the like. Duodenal ulceration has been observed repeatedly with tuberculous and other forms of meningitis. Its occurrence in association with meningococcic meningitis, however, was not recorded in the reviews mentioned, although Eckstein<sup>6</sup> stated that hemorrhages sometimes take place in the mucous membranes of the intestine in patients with this disease.

Gerdine and Helmholtz<sup>5</sup> observed diplococci in the base of the ulcer in a large number of children. The organisms were present "in such numbers and in such a position that they presumably are of etiologic significance." In one of their cases there was isolated from the duodenal ulcer *Streptococcus viri-*

## REPORT OF CASE

C E, a Negro boy aged 6 years, entered St. Mary's Hospital April 22, 1934, with a temperature of 104.4 F and a complaint of pain in the chest and the abdomen. That night he had convulsions, and on the following day his neck became rigid. Kernig's sign was elicited. Spinal puncture revealed a pressure of 20 mm and a cell count of 5,000 per cubic millimeter. No organisms were seen on direct smear.

The next day the patient was transferred to the Contagious Disease Wards of Cincinnati General Hospital where the following history was obtained. The child had had measles, chickenpox, whooping cough and mumps. He had been vaccinated for smallpox and had received tetanus antitoxin on one occasion. His parents and the two other children of the family, 4 and 8 years of age, were living and well.

On examination the patient who was rational and cooperative appeared moderately ill. He complained of a slight pain in his neck. The respirations were not labored, the rate being about 20 a minute. The temperature was 102.2 F, the pulse rate 40 and the blood pressure 85 systolic and 60 diastolic. There was a fading morbilliform rash on the skin of the abdomen, chest and extremities. The pupils were contracted but equal and regular and reacted to light. The pharynx was slightly injected. The lungs were clear to percussion and auscultation. The heart was not enlarged. A loud, blowing systolic murmur was heard over the entire precordium; the rhythm was regular. No masses were felt in the abdomen and no tenderness was elicited. All physiologic reflexes were absent except the abdominal. Kernig's sign was present. A provisional diagnosis of meningococcic meningitis was made.

Spinal puncture performed April 23, showed a cloudy fluid under a pressure of 18 mm with 6,000 cells per cubic millimeter, of which 98 per cent were polymorphonuclear leukocytes. Direct smear showed no organisms. The following day the culture of the spinal fluid was positive for meningococci. The patient was given intrathecal injections of antimeingococcus serum, from 15 to 30 cc daily, receiving a total of 225 cc over a period of ten days. On several occasions cisternal and spinal punctures were performed simultaneously and irrigation with physiologic solution of sodium chloride was instituted. The patient appeared to be improving. He maintained himself in moderate opisthotonos most of the time. Suddenly on the morning of May 3 he had slight tremors of his entire body. He was given a sedative and later a soapsuds enema which was returned with a large amount of soft slightly formed brown fecal matter. After this his pulse became irregular and barely perceptible. He died two hours after the onset of the generalized bodily tremors.

Necropsy was performed twelve hours after death. In the examination of the gastro enteric tract the esophagus was seen to contain a thick, dark brown fluid with small particles of undigested food. The stomach was distended with thick, brown, bloody fluid. On the posterior wall of the duodenum 5 cm from the pyloric ring there was a deep, crater like ulcer with thick, rolled overhanging edges. This ulcer measured 8 by 12 mm. The surrounding tissues were slightly indurated. The floor of the ulcer was clean and moderately thickened. In the jejunum and the upper half of the ileum thick, sticky, black fecal matter was present. The feces in the colon were slate gray. The Peyer's patches and solitary lymph nodes in both the small intestine and the colon were conspicuous. Those of the ileum just proximal to the ileocecal junction were greatly enlarged and congested. No noteworthy changes were observed in the remaining portions of the gastro enteric tract.

The pancreas was of average size, reddish yellow and quite flabby. Sections through the tail of the pancreas revealed many petechial hemorrhages into the interlobar tissue. In the head of the pancreas these were less conspicuous although the tissue was congested.

The calvarium and the dura were not remarkable. The vessels over the brain were much congested. There were marked flattening of the cerebral convolutions and narrowing of the fissures. The cerebrospinal fluid was slightly cloudy and had a yellowish tinge. Over the base of the brain there was only a faint yellow clouding along some of the blood vessels. There

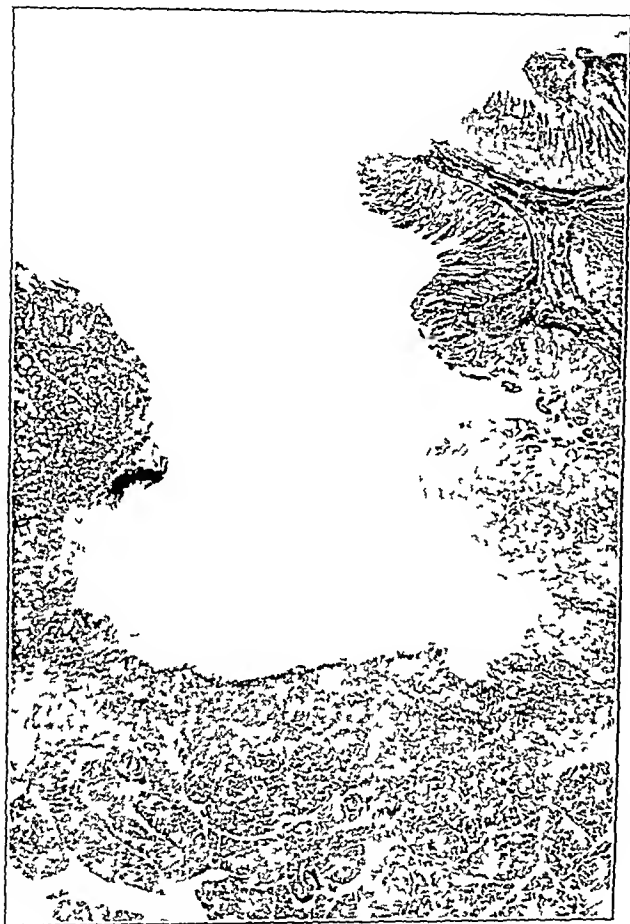


Fig 1—The duodenal ulcer (X 20)

dans, which on injection into rabbits and dogs localized in the pyloric end of the stomach and there produced hemorrhage and ulceration. The authors concluded, with reference to Rosenow's work with the adult, that duodenal ulcer in childhood may be the result of infection with a streptococcus of particular virulence.

That a meningococcic infection can also result in the formation of a duodenal ulcer may be suggested by consideration of the following case, which also appears to be of interest in connection with the neurogenic aspects of the pathogenesis of ulcer.

5 Schmidt W. Das Ulcus rotundum duodeni im ersten Lebensjahr. Berl. klin. Wchnschr. 50: 593, 1913. Gerdine Linton and Helmholtz H. F. Duodenal Ulcer in Infancy. An Infectious Disease. Am. J. Dis. Child. 10: 397 (Dec.) 1915. Berglund.

6 Eckstein Albert. Diseases of the Meninges in Pfaunder M. V. and Schlosmann A. Diseases of Children. Philadelphia J. B. Lippincott Company, 1933, vol. 5, p. 56.

7 Cushing Harvey. The Pituitary Body, Hypothalamus and Parasympathetic Nervous System. Springfield, Ill. Charles C. Thomas, Publisher, 1932.

was a small amount of subarachnoid hemorrhage around the medulla. The brain weighed 1,215 Gm. Horizontal section at the level of the basal nuclei revealed no pathologic changes other than moderate edema and congestion. The ependyma was thin smooth and glistening. The venous sinuses were not remarkable. The vessels of the meninges were congested. There was little purulent exudate around the cord. On section its edges rolled outward. No other pathologic changes were noted.

Sections through the duodenal ulcer, stained with hematoxylin and eosin, showed a rather deep, punched out area disrupting the muscularis mucosae and extending into the longitudinal layer of muscle (fig 1). The duodenal mucosa was practically intact up to the edges of the ulcer. Some necrotic tissue and a rather extensive amount of fibrinous exudate were present in the floor of the ulcer. There was marked invasion of the tissue surrounding the ulcer by various types of cells mainly polymorphonuclear leukocytes and lymphocytes, with a few endothelial leukocytes. The area of the pancreas adjacent to the floor of the ulcer showed infiltration of the reacting cells along the fibrous septums of this organ. There was moderate edema



Fig 2—Gram negative diplococci having a structure similar to that of the organisms observed in the meninges (oil immersion lens)

of the tissues surrounding the ulcer. Old eroded blood vessels were seen in the section. Sections stained by the Giemsa and the Gram-Weigert method (fig 2) showed definite groups of biscuit-shaped, gram negative diplococci which had a structure similar to that of the organisms observed in the meninges. Numerous other cocci were found some arranged in short chains for the most part gram positive.

The pathologic diagnosis was acute and beginning subacute duodenal ulcer with hemorrhage into the intestine, acute purulent meningitis, severe toxic changes in the viscera, multiple abscesses in the kidneys, acute inflammation of the anterior lobe of the pituitary, multiple focal hemorrhages in the pancreatic tissue with subacute inflammation of the pancreatic ducts, acute ulcerative esophagitis, acute splenitis and generalized lymphadenopathy.

#### SUMMARY

In a boy aged 6 years with meningococcic meningitis who improved under treatment with antimeningococcus serum a severe hemorrhage occurred from an ulcer of the duodenum and resulted in death on the twelfth day after the onset of the disease.

Sections of the ulcer showed among other organisms groups of biscuit-shaped gram negative diplococci having a structure similar to that of the organisms observed in the meninges.

#### RECURRENT OR RESIDUAL PROGRESSIVE ILEITIS

GORDON D. OPPENHEIMER, M.D., NEW YORK

In 1932 Ginzburg and Oppenheimer<sup>1</sup> presented their studies of fifty-two cases of nonspecific inflammation of the bowel which had been observed in the previous ten years. An accurate etiologic or pathologic classification of this material was not possible. However, they submitted a classification, "fully conscious of its defects and overlappings but pleading in its favor a certain degree of clinical utility."

One group of fourteen cases presented pathologically a localized chronic nonspecific hypertrophic ulcerative stenosing inflammatory lesion of the terminal ileum, which was sometimes associated with fistula formation. This group, called "regional ileitis" was emphasized in a separate publication with Crohn<sup>2</sup> because of certain typical additional clinical and radiologic features. In the original communication,<sup>1a</sup> illustrative cases were cited. One of the cases of ileitis (case 10) has presented an interesting course since the initial radical operation. Since our knowledge of the ultimate outcome of these patients following various methods of treatment is still limited, a detailed report of this particular case seems warranted and follows herewith.

#### REPORT OF CASE

**History.**—H. C.,<sup>3</sup> a man aged 28, Jewish, clerk, admitted to the hospital Jan. 18, 1928, complained of colicky pains in the abdomen unrelated to meals, of three weeks' duration. On the day of admission the pains became more severe and were referred to the right lower quadrant of the abdomen. There had been no vomiting, diarrhea or chills.

On admission, the temperature was 104°, pulse 128. The blood count revealed 20,000 white blood cells with 92 per cent polymorphonuclear leukocytes. There was tenderness, rigidity and a mass in the right lower quadrant. Clinically the condition was considered an abscess of the appendix. Laparotomy was performed and a large mass was found in the right iliac fossa. The mass was unraveled and found to consist of cecum, appendix, terminal ileum and its mesentery, and a loop of adherent sigmoid. The appendix was lying in a bed in the mesentery of the terminal ileum. It was about 2 inches thick and was oozing pus. The appendix was removed and the area drained. For the first five postoperative days the patient's course was stormy. The temperature was 107.6° F. on the first day and 105.6° for the next two days but finally fell. The patient was discharged on the twenty-first postoperative day with his wound almost completely healed. The pathologic report of the appendix was acute and chronic inflammation.

**Second Admission.** May 5 to 19, 1931.—The patient was well for eight months after the appendectomy. Then the scar broke down in one place and drained a purulent, odorless fluid for two months. Spontaneous healing occurred. For the next year and a half the patient had no symptoms. Two weeks before this admission he began to experience pain at the site of his scar which gradually became more severe. On admission the patient's temperature was 103°, and a fluctuant mass presented itself beneath the scar. On incision, about 1 ounce (30 cc.) of thick yellow pus was evacuated. Three days later, fecal drainage was noted. Examination of an injection of iodized oil into the fistula showed that the material entered the cecum and ascending colon. A barium sulfate enema revealed no abnormality of the colon. The patient was discharged with the fecal fistula draining moderately.

**Third Admission.** July 31 to August 5.—Physical examination was essentially negative except for the presence of an exudate in the right lower quadrant of the abdomen. It was deemed advisable to continue with conservative therapy and the patient was discharged.

**Fourth Admission.** October 27 to November 22.—The interval history was one of moderate loss in weight, occasional febrile

From the Surgical Service of Dr. Ralph Colp, Mount Sinai Hospital.  
1 Ginzburg, Leon and Oppenheimer, G. D. (a) Nonspecific Granulomata of the Intestine (Inflammatory Tumors and Strictures of the Bowel). *Tr. Am. Gastro-Enterol. A.* November 1932, pp. 241-273. (b) *Ann. Surg.* 98:1046-1062 (Dec.) 1933.

2 Crohn, B. B., Ginzburg, Leon and Oppenheimer, G. D. Regional Ileitis. *J. A. M. A.* 99:1323 (Oct. 15) 1932.

3 This patient was presented with a group of Cases of Non-Specific Granulomata of the Intestine before the New York Surgical Society, Nov. 25, 1937, by Dr. Ralph Colp.

episodes and abdominal pains for the past month. There was no diarrhea. An intestinal fistula was still present.

X-ray studies of the sinus following the injection of iodized oil showed that the bulk of the iodized oil entered the cecum and ascending colon. An exploratory laparotomy revealed that the mass which had been palpated previously consisted of greatly thickened indurated edematous terminal ileum. The fistulous tract led to ileum about 4 cm away from the ileocecal junction. The cecum and ascending colon appeared normal. The ileum was divided 40 cm proximal to the ileocecal junction and about 10 cm above the inflamed area. The ileum and 12 cm of the ascending colon were resected. Both intestinal ends were closed and a side to side, isoperistaltic ileotransverse colonic anastomosis was performed.

The patient made an uneventful convalescence and was discharged feeling well.

**Pathologic Examination**—The specimen consisted of 40 cm of terminal ileum and 12 cm of ascending colon and attached skin. From the skin a fistulous tract led to a point in the ileum 4 cm from the ileocecal junction. There were some enlarged,



Six hour plate showing stenotic lesion of ileum up to anastomosis

moderately firm lymph nodes at the ileocecal angle. Examination of the interior of the specimen showed that the cecum and colon were normal. Beginning at the ileocecal valve and extending upward for 30 cm there were marked mucosal alterations. The mucosa was congested thickened and thrown up with irregular folds. The rugae had lost their identity. The surface presented numerous hemorrhages erosions and ulcerations interspersed with areas of mucosal hyperplasia. The submucous layers were moderately thickened and fibrotic. Above the inflamed area the ileum appeared moderately dilated but otherwise normal.

Microscopic examination revealed marked mucosal ulceration with chronic and acute purulent inflammation diffuse thickening of all layers of the intestine especially the submucosa due to edema granulation tissue and diffuse infiltration with large and small lymphocytes, plasma cells and occasional polymorphonuclear leukocytes. No tubercles or tubercle bacilli were seen.

The pathologic diagnosis was hypertrophic chronic ulcerative inflammation of the ileum.

**Follow-Up**—When seen July 3, 1932 the patient felt well. He had gained weight and the bowels moved twice a day. A gastro-intestinal series taken Nov. 14, 1933 showed no significant changes. The patient was seen on numerous occasions and was well until June 1936 when he began to have watery stools and epigastric pain. June 20 another gastro-intestinal x-ray

examination was made. On the four to six hour observations, the distal ileum for a distance of 10 inches proximal to the stoma, appeared to be the site of a marked ulcerative, stenosing lesion as shown in the accompanying illustration.

**Fifth Admission, Nov. 5-26, 1936**—The interval history five years after resection, was one of occasional attacks of diffuse abdominal pain with three watery bowel movements a day but without pus or blood. The physical examination was essentially negative. The blood Wassermann reaction and urinalysis were negative.

Operation was performed November 7 under spinal anesthesia. The terminal 18 inches of ileum showed the characteristic lesion of ileitis. Its peritoneal surface was dull the wall was thickened inflamed and edematous. Large lymph nodes were present in the mesentery. The ileum was divided proximal to the inflamed area. Both ends were closed and an ileosigmoidal side to side isoperistaltic anastomosis was performed with the upper loop.

**Postoperative Course and Follow-Up**—The patient made an uneventful recovery and was discharged feeling well. He visited the Follow-Up Clinic Jan. 21, 1937, and was found to have gained 7 pounds (3.2 Kg). He was well and asymptomatic. August 4 the patient was working, was feeling well and was having several soft bowel movements daily.

#### COMMENT

Obviously there are two possibilities to explain the presence of disease after a primary resection. Either it is a true recurrence of a previously uninvolved ileum or the disease was present and unrecognized, following which it persisted and progressed to cause symptoms. Another comparable case has come to my attention from this hospital.<sup>3a</sup> Jackson<sup>4</sup> in a recent paper describes a similar case in a woman. His presentation gives perhaps the life history of the disease. When first seen in 1909 the patient was operated on because of pain in the right lower quadrant, vomiting and diarrhea. The preoperative diagnosis was appendicitis but the lesion appeared to be what is now recognized as an ileitis. Nothing but an appendectomy was performed. From then on she had recurrent attacks of abdominal cramps with free intervals. She was operated on in May 1929 (twenty years later) and the lower part of the ileum and the cecum were removed. The lesion was pathologically an ileitis. The patient was free from attacks until five years later when in 1934 severe cramplike pains recurred. A gastro-intestinal series showed a lesion in the distal 30 cm of ileum up to the anastomosis. A third operation (ileocolic resection) was performed in 1935 and the lesion of a recurrent or residual ileitis similar to the original lesion was found. The disease involved only the small intestine, stopping sharply at the anastomosis. Shearer and Jackson<sup>5</sup> reported a case of ileitis with twice recurrent disease after apparently wide resections.

From these observations it does not seem possible to differentiate between a residual and a recurrent lesion. Even if radical operation had completely removed the disease it is not illogical to suppose that the etiologic factors (which are still unknown) may have persisted and caused the subsequent involvement of the new terminal ileum. On the other hand in favor of a persistent residual lesion with subsequent progression is the possibility that the early lesion of the disease is so minimal that what was considered normal ileum may have already been involved but not evident to the eye or touch.

It might be advisable when doing either a radical excision or the conservative division of ileum with ileocolonic anastomosis to divide the ileum at least 8 to 12 inches proximal to visible or palpable involvement. In addition the operator should examine the ileum carefully far above the lesion looking for inflammation since it is known now that skip or inflamed areas may occur between which lie portions of normal ileum.

941 Park Avenue

3a Since this report was submitted for publication a third patient, a personal one, has returned with vague abdominal cramps and diarrhea. X-ray studies suggest a stenosing lesion of the terminal ileum. The patient was a man aged 29 who was operated on three years ago in this hospital. A wide ileocecal resection was performed for a typical regional ileitis without fistula. As yet a secondary operation has not been done.

4 Jackson, A. S. Regional Enteritis. Surg. Gynec. & Obst. 65: 110 (July) 1937.  
5 Shearer, J. P. and Jackson, J. T. Recurrent Regional (Terminal) Ileitis. Ann. Surg. 106: 459-461 (Sept.) 1937.

## Special Article

### CHEMICAL ASPECTS OF RIBOFLAVIN

LELA E. BOOHER, PH.D.

WASHINGTON, D. C.

*This article and others recently published or to be published comprise a new series on the present status of our knowledge of the vitamins. They have been prepared under the general auspices of the Council on Pharmacy and Chemistry and the Council on Foods. The opinions expressed are those of the authors and not necessarily the opinions of either council. The articles will be published later in book form.—Ed*

#### HISTORICAL SKETCH

The chemical nature of the water-soluble yellow green-fluorescent pigment of whey now referred to as riboflavin (synonymous with lactoflavin, vitamin G and vitamin B<sub>2</sub>, as used by many English and German investigators) commanded the attention of chemists<sup>1</sup> as early as 1879. A considerable concentration of this pigment was effected and certain of its more obvious chemical properties were clearly set forth by Bleyer and Kallmann<sup>2</sup> in 1925. No unusual significance was associated with this pigment by these early workers, who apparently regarded it only as one of the minor constituents of milk, the chemical nature of which was quite obscure.

In 1932 Warburg and Christian<sup>3</sup> described a new oxidation enzyme obtained from aqueous extracts of yeast. The enzyme in water solutions was yellow and exhibited a green fluorescence. Together with a second enzyme obtained from yeast and a co-enzyme obtained from the red blood cells of horse blood this "yellow enzyme" constituted an enzyme system capable of oxidizing Robison's hexose-monophosphoric acid ester. The "yellow enzyme" was reversibly reduced to its leukoform during the process. To regenerate the pigmented enzyme it was necessary only to shake the solution carrying it in leukoform with molecular oxygen. In this system the "yellow enzyme," by virtue of its easily reversible oxidation-reduction reactions, acts as an oxygen transport between molecular oxygen and the substrate. It has now been practically established that this "yellow enzyme" is present in every living cell or at least in the cells of all the higher forms of life.<sup>4</sup>

Warburg and Christian<sup>3</sup> were able to separate the "yellow enzyme" from yeast and to split it into a protein component and a pigment component. Neither component alone was catalytically active. The separation of these components was effected by addition of three volumes of methyl alcohol to a water solution of the enzyme at a temperature of 38°C., whereupon the protein was denatured leaving the pigment component in solution. These brilliant researches constitute the first separation and identification of the prosthetic or chemically active grouping of an enzyme. Irradiation of

alkaline solutions of the pigment component followed by acidification of the irradiated solution yielded a yellow chloroform soluble photoderivative (later designated lumiflavin). Studies of the chemical nature of this photoderivative which can also be obtained readily from the relatively heat-stable vitamin riboflavin, constituted the crux in the elucidation of the chemical structure of the vitamin and of the prosthetic group of the enzyme.

In 1933 there appeared almost simultaneously from three different laboratories reports supporting a relationship and probable identity of the water-soluble yellow green-fluorescent pigments widely distributed in animal and plant products with vitamin G or vitamin B<sub>2</sub>, the accepted chemical name for which is now riboflavin. Ellinger and Koschiar<sup>5</sup> called attention to the presence of a group of water-soluble yellow green-fluorescent pigments present in milk, liver, kidneys, urine, muscle, yeast and plant materials for which they suggested the name lyochromes, in contradistinction to the group of naturally occurring fat-soluble pigments, lypochromes. These authors suggested also the probable relationship of these pigments to the yellow enzyme discovered by Warburg and Christian. Any one thoroughly familiar with the properties and distribution of the vitamin riboflavin could readily discern from their report the similarity of the qualities of the vitamin with the attributes of the pigments designated as lyochromes.

About the same time I<sup>6</sup> had succeeded in obtaining from whey powder several concentrated growth-promoting supplements for the Bourquin-Sherman<sup>7</sup> vitamin G-deficient diet, the vitamin potencies of which paralleled the intensities of yellow pigmentation.

Kuhn and his co-workers<sup>8</sup> had isolated a water-soluble yellow green-fluorescent pigment from dried egg albumin and reported<sup>10</sup> that the crystalline product was a growth-promoting supplement for the Bourquin-Sherman diet, 100 micrograms a day inducing a growth rate in rats of about 10 Gm. a week. In subsequent studies these workers seemingly had difficulty with the Bourquin-Sherman diet and found it necessary to supplement it further with concentrates of unidentified factors present in yeast extracts. These authors also called attention to the similarity in distribution of the vitamin and the water-soluble yellow pigments and to their probable relationship with the yellow enzyme. They suggested the chemical group name of flavins for these pigments, the ending "-in" denoting that they contained nitrogen as an elemental constituent. Since there appeared to be differences in the relative vitamin activities of the yellow pigment preparations, they assumed that there were inherent differences in chemical nature associated with variation in source materials. Pending further chemical investigations they proposed to differentiate them by appropriate prefixes such as ovo-, lacto- and hepato-flavins.

Further investigation has shown that an identical flavin having a d-ribose residue attached to the tricyclic chromophore nucleus (characteristic of all flavins) is

From the Bureau of Home Economics U. S. Department of Agriculture.

1. Blyth A. Winter. The Composition of Cow's Milk in Health and Disease. *J. Chem. Soc.* 35 530 539 (1879).

2. Bleyer B. and Kallmann O. Beiträge zur Kenntnis einiger bisher wenig studierter Inhaltsstoffe der Milch (Kuhmilch). *II. Biochem. Ztschr.* 155 54 79 (Jan.) 1925.

3. Warburg Otto and Christian Walter. Ueber ein neues Oxydationsferment und sein Absorptionsspektrum. *Biochem. Ztschr.* 254 438 458 (Oct.) 1932.

4. Warburg Otto and Christian Walter. Ueber das Gelbe Ferment und seine Wirkungen. *Biochem. Ztschr.* 266 377 411 (Nov.) 1933.

5. Warburg Otto and Christian Walter. Ueber das neue Oxydationsferment. *Naturwissenschaften* 20 980 981 (Dec. 16/21) 1932.

6. Ellinger Philipp and Koschiar Walter. Ueber eine neue Gruppe tierischer Farbstoffe (Lyochrome). *Ber. d. Deutschen chem. Gesellsch.* 66 315 317 (Feb.) 1933. Ueber eine neue Gruppe tierischer Farbstoffe (Lyochrome). *ibid.* 66 808 813 (June) 1933.

7. Booher Lela E. The Concentration and Probable Chemical Nature of Vitamin G. *J. Biol. Chem.* 102 39 46 (Sept.) 1933.

8. Bourquin Anne and Sherman H. C. Quantitative Determination of Vitamin G (B<sub>2</sub>). *J. Am. Chem. Soc.* 53 3501 3505 (Sept.) 1931.

9. Kuhn Richard György Paul and Wagner Jauregg Theodor. Ueber Oxyflavin den Farbstoff des Eiklars. *Ber. d. Deutschen chem. Gesellsch.* 66 576 580 (April) 1933.

10. Kuhn Richard György Paul and Wagner Jauregg Theodor. Ueber eine neue Klasse von Naturfarbstoffen (Vorläufige Mitteilung). *Ber. d. Deutschen chem. Gesellsch.* 66 317 320 (Feb.) 1933.

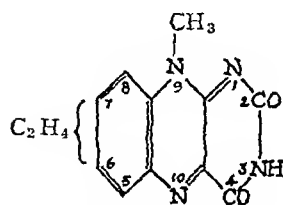
obtained from a variety of natural source materials. Other flavins and flavin derivatives have been synthesized with various groups replacing the d-ribose residue and some of these possess vitamin activity. However, none of these now known possess greater vitamin potency than d-riboflavin and probably all of them are less potent than riboflavin.

The use of the term d-riboflavin or just riboflavin as a substitute for the terms vitamin B<sub>2</sub> or vitamin G was suggested<sup>11</sup> by the Council on Pharmacy and

Chemistry. This terminology was later approved by the Committee on Vitamin Standards, American Society of Biological Chemists, and also by the Committee on Vitamin Nomenclature, American Institute of Nutrition (April 1937).

The remainder of the story of the chemistry of riboflavin is the story of the elucidation

of the intimate structure of the molecule, its characteristic properties, its many derivatives and its relation to the "yellow oxidation enzyme."



I Lumiflavin—a predicted partial structural formula

#### ISOLATION

Riboflavin has been isolated from a wide variety of animal and plant products, including egg white,<sup>9</sup> milk,<sup>12</sup> liver,<sup>13</sup> kidney,<sup>14</sup> urine,<sup>15</sup> barley malt,<sup>16</sup> dandelion blossoms,<sup>17</sup> grasses,<sup>18</sup> egg yolk<sup>19</sup> and retinas of fish eyes.<sup>20</sup> It cannot be stated with absolute certainty that the crystalline flavin obtained from each of these various sources is chemically identical with riboflavin, but such is the case at least for those to which adequate determinative tests have been applied. Four synthetic flavins closely related chemically to riboflavin have been reported<sup>21</sup> to possess vitamin activity, but so far none of these have been reported to occur in natural products.

The isolation of riboflavin from these many naturally occurring source materials has been accomplished through the independent efforts of several laboratories. The several methods of isolation employed although slightly diversified in certain detailed manipulations, have much in common. The successive steps in the isolation procedures may be summarized in a general way as follows: (1) extraction of flavin-containing material with aqueous acid solutions, with alcohol or with water-alcohol mixtures, (2) adsorption of the flavin from the extract on fullers' earth, lead sulfide or other suitable adsorbent usually from acid solution, (3) elution of the flavin from the adsorbent by means of pyridine, pyridine-methyl alcohol-water mixtures,

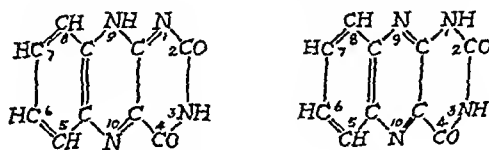
or ammonia in water or in water-alcohol mixtures, (4) removal of elution solvent with recovery and concentration of the flavin in water or alcohol solution followed by elimination of acetone insoluble impurities, (5) precipitation and crystallization of a heavy metal (notably silver or thallium) salt of the flavin which is soluble with difficulty and easily crystallized, and (6) recovery of the metal-free flavin followed by repeated crystallizations from water, alcohol or dilute acetic acid solutions.

In their earlier work, Kuhn and his co-workers<sup>9</sup> obtained from 100 Kg of dried egg albumin, corresponding to about 33,000 eggs, 100 mg of three recrystallized flavins. According to subsequent measurements<sup>22</sup> of the quantities of flavin normally present in dried egg albumin, this yield would correspond to around 7 per cent of the total flavin present in the egg albumin. Similarly the yield of crystalline flavin from milk as reported<sup>23</sup> in the earlier work was not greater than 5 per cent of the total quantity present. The use of heavy metal precipitations increased the yield to around 18 to 20 per cent of the quantity reported<sup>22</sup> to be normally present in milk.

Riboflavin crystallizes from absolute alcohol as yellow-orange, needle shaped crystal clusters. The crystals possess no sharp melting point but rather begin to darken at about 240 C and decompose at temperatures of around 274 to 282 C. The tetra-acetyl derivative liquefies with decomposition at about 238 to 242 C. Elementary analysis of the riboflavin crystals established the empirical formula C<sub>17</sub>H<sub>20</sub>N<sub>4</sub>O<sub>6</sub> corresponding to a molecular weight of 376.

#### ELUCIDATION OF RIBOFLAVIN STRUCTURE

Following the isolation of riboflavin in crystalline form, the next step directed toward ultimate synthesis of the compound rested on elucidation of its characteristic chemical features. Warburg and Christian<sup>4</sup> had already isolated a photoderivative from the pigment component of their yellow enzyme and had expounded many of its more salient properties. Exposure of alkaline solutions of the pigment component to ultraviolet irradiation or ordinary light resulted in the formation of a yellow photoderivative (lumiflavin), soluble with difficulty in water but soluble in chloroform and



II Isoalloxazine and alloxazine

having the empirical formula C<sub>17</sub>H<sub>12</sub>N<sub>4</sub>O<sub>6</sub>. The course of this reaction could be followed by acidifying a portion of the solution at intervals and extracting the solution with chloroform. This photoderivative exhibited spectral properties very similar to those of the pigment component of the enzyme having two characteristic absorption bands in the ultraviolet region and one in the visible wavelength range. The yellow color of the photoderivative could be reversibly dispelled by reduction with hydrogen in the presence of palladium. Warming a solution of the photoderivative in the

11 Council on Pharmacy and Chemistry, Riboflavin: the Accepted Name for Vitamin B<sub>2</sub>. J. A. M. A. 108:1340-1341 (April 17) 1937.

12 Kuhn, Richard, Rudolph, Hermann and Wagner Jauregg, Theodor. Ueber Lactoflavin (Vitamin B<sub>2</sub>). Ber. d. Deutschen chem. Gesellsch. 66:1950-1956 (Dec.) 1933.

13 Karrer, Paul, Salomon, H. and Schopp, K. Isolierung des Hepa flavins. Helvet. chim. acta 17:419-425 (March) 1934.

14 Karrer, Paul. Ueber einige natürlich vorkommende biochemisch bemerkenswerte Pigmente. Helvet. chim. acta 19:533-548 (Aug.) 1936.

15 Koschura, Walter. Ueber ein Lyochrom aus Harn (Uroflavin). Ber. d. Deutschen chem. Gesellsch. 67:761-766 (May) 1934. Karrer<sup>14</sup>.

16 Karrer, Paul and Schopp, K. Isolierung des Flavins aus Malz. Helvet. chim. acta 17:1013-1014 (Nov.) 1934.

17 Karrer, Paul and Schopp, K. Isolierung eines pflanzlichen Flavins. Helvet. chim. acta 17:771-773 (July) 1934.

18 Kuhn, Richard and Kaltschmitt, Hans. Isolierung von Lactoflavin (Vitamin B<sub>2</sub>) aus Heu. Ber. d. Deutschen chem. Gesellsch. 66:128-131 (Jan.) 1933.

19 Karrer, Paul and Schopp, K. Isolierung des Flavochroms aus Eigelb (Ovoflavin G). Helvet. chim. acta 17:732-737 (July) 1934.

20 Euler, Hans and Adler, Erich. Ueber das Vorkommen von Flavinen in tierischen Geweben. Ztschr. f. physiol. Chem. 223:105-112 (Feb.) 1934.

21 Karrer, Paul and Quibell, T. H. Synthesen einiger neuer Flavine. Helvet. chim. acta 19:1034-1042 (Oct.) 1936.

22 Kuhn, Richard, Wagner Jauregg, Theodor and Kaltschmitt, Hans. Ueber die Verbreitung der Flavine im Pflanzenreich. Ber. d. Deutschen Gesellsch. 67:1452-1457 (Aug.) 1934.

23 Kuhn, Richard, Gyorky, Paul and Wagner Jauregg, Theodor. Ueber Lactoflavin den Farbstoff der Molke. Ber. d. Deutschen chem. Gesellsch. 66:1034-1039 (July) 1933.

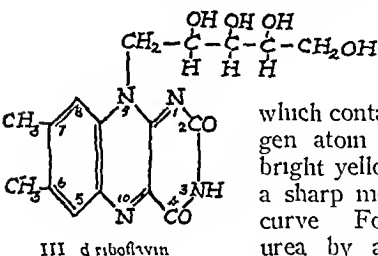


presence of barium hydroxide liberated urea,<sup>1</sup> thereby disclosing its alkali lability and paving the way for the later disclosure of the presence of an -NH-CO-NH-grouping

The suggestion of a probable relationship of the yellow enzyme and the vitamin riboflavin stimulated no inconsiderable interest in this photoderivative. It was soon found<sup>12</sup> that irradiation of alkaline solutions of riboflavin resulted in the splitting off of a hydroxyl-rich side chain, the latter being responsible for the solubility of the vitamin in water. Since the elementary composition of both the vitamin ( $C_{17}H_{20}N_4O_6$ ) and that of the photoderivative ( $C_{13}H_{12}N_4O_2$ ) had been ascertained, the portion split off must correspond to  $C_4H_8O_4$  ( $C_{17}H_{20}N_4O_6 - C_{13}H_{12}N_4O_2 = C_4H_8O_4$ ). Furthermore, acetylation of riboflavin yielded a tetra-acetyl derivative associated with the 4-carbon portion split off by photolysis. One primary alcohol group in the hydroxyl-containing side chain was established from quantitative measurements of the formaldehyde formation resulting from the application of suitable oxidation procedures. The group split off then by photolysis must necessarily correspond to a side chain of the structure -CHOH-CHOH-CHOH-CH<sub>2</sub>OH.

Kuhn and Rudy<sup>24</sup> made further intensive studies of the products of alkaline hydrolysis of riboflavin and lumiflavin. By heating alkaline solutions of either riboflavin or lumiflavin they obtained urea and an organic acid,  $C_{12}H_{12}N_2O_3$ ,

which contained one active hydrogen atom and which formed a bright yellow silver salt and gave a sharp monobasic acid titration curve. For the splitting off of urea by alkaline hydrolysis of lumiflavin, two molecules of



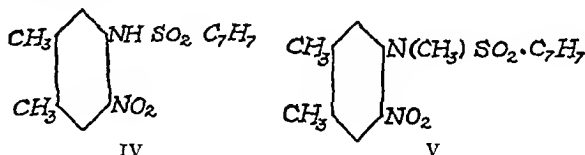
water were required. This would indicate that the urea-yielding group belonged to a ring system and not to a side-chain ureide or guanidino group wherein only one molecule of water would be required. These observations, jointly considered make it evident that both oxygen atoms of lumiflavin ( $C_{13}H_{12}N_4O_2$ ) belong to an alkali-labile ring, one going to form urea and the other to build the carboxyl group in the organic acid  $C_{12}H_{12}N_2O_3$ .

Further studies<sup>25</sup> led to the finding that both lumiflavin and the organic acid  $C_{12}H_{12}N_2O_3$  contained an alkylimide grouping, in contrast to riboflavin, in which this grouping is absent. Apparently then the sugar-like side-chain split off by photolysis of riboflavin was replaced by an alkyl group. As a result of the studies of the decomposition products of riboflavin and lumiflavin the partial structural formula I for the latter was advanced by Kuhn.

In the riboflavin molecule a d-ribityl group replaces the methyl group of lumiflavin at position 9. This proposed structure definitely related riboflavin and lumiflavin to the alloxazine series of organic compounds, which were first discovered by Kuhling<sup>26</sup> in 1891 and which possessed many properties similar to those of flavins.

The structures of alloxazine and its tautomeric form, iso-alloxazine, are represented in formula II.

Riboflavin and lumiflavin are derivatives of iso-alloxazine, since riboflavin and lumiflavin each possess only one active hydrogen atom, namely at position 3, while the alloxazine molecule contains two active hydrogen atoms (positions 1 and 3). In riboflavin and lumiflavin the hydrogen attached to the nitrogen at position 9 is replaced by a pentose residue and a methyl group, respectively.



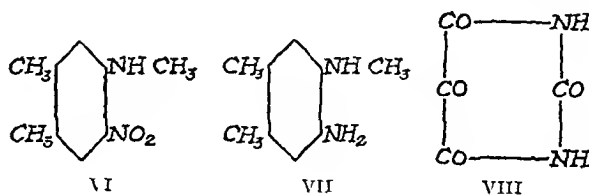
A structural formula III was predicted for riboflavin and subsequently confirmed by synthesis. The formula shows the side-chain as ribose.

It was not known in the early stages of the investigations, of course, that the spacial relationships of the hydroxyl-containing side-chain corresponded specifically to d-ribose.

#### SYNTHESIS OF LUMIFLAVIN AND RIBOFLAVIN

Once the essential structural features of riboflavin had been deciphered, attempts to synthesize many of its chemically related compounds were quick to follow. The synthesis of lumiflavin was achieved before that of the vitamin. Except for the reaction involving condensation of the 6,7-dimethyl derivative of ortho-phenylenediamine with alloxan, a reaction based on the earlier work of Kuhling<sup>26</sup> and Kuhling and Kase-litz,<sup>27</sup> the steps involved in the synthesis of this compound are well known in the field of organic chemistry.

The synthesis of lumiflavin as developed by Kuhn and his co-workers<sup>28</sup> is as follows. Ortho-xylene on treatment with nitric acid yields 1,2-dimethyl-4,5-dinitrobenzene, which on partial reduction yields 1,2-dimethyl-4-nitro-5-aminobenzene. The latter is heated at 100 C with paratoluene sulfone chloride in pyridine for four to five hours and yields a product with formula IV. This intermediate on treatment with dimethyl sulfate and alkali at 50 to 60 C yields a



methyl derivative V. Hydrolysis of this derivative can be accomplished with a mixture of glacial acetic and concentrated sulfuric acids and there is produced the methyl amino compound VI. The nitro group of compound VI is reduced with stannous chloride and hydrochloric acid to yield the amino compound VII. The hydrochloride of compound VII is condensed with a slight excess of alloxan VIII in water at 50 to 60 C to yield lumiflavin IX, the yield over all is about 75 per cent.

<sup>24</sup> Kuhn, Richard and Rudy, Hermann. Ueber den alkali-labilen Ring des Lactoflavins. Ber. d. Deutschen chem. Gesellsch. 67 892 898 (May) 1934.

<sup>25</sup> Kuhn, Richard and Rudy, Hermann. Ueber die Konstitution des Lumiflavin. Ber. d. Deutschen chem. Gesellsch. 67 1298 1299 (July) 1934.

<sup>26</sup> Kuhling, O. Ueber azine der Harnsauregruppe. Ber. d. Deutschen chem. Gesellsch. 24 2363 2369 (July) 1891.

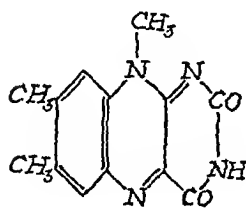
<sup>27</sup> Kuhling, O. and Kase-litz, O. Ueber Condensationsprodukte von substituirter O-Diamine mit Alloxan und dessen Derivaten. Ber. d. Deutschen chem. Gesellsch. 39 1314 1326 (March) 1906.

<sup>28</sup> Kuhn, Richard and Renemund, Karl. Ueber die Synthese des 6,7,9-Trimethylflavins (Lumi-lactoflavins). Ber. d. Deutschen chem. Gesellsch. 67 1932 1936 (Nov.) 1934.

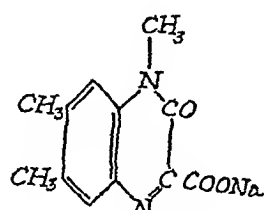


The alkaline hydrolysis of lumiflavin forms urea and an alkaline salt of the organic acid  $C_{12}H_{12}N_2O_3$ , X, a reaction of material assistance in elucidating the structure of the tricyclic chromophore nucleus of riboflavin.

Without the presence of the modified pentose side-chain attached to the N-atom position 9 (see proposed structural formula III for riboflavin) the flavin possesses no vitamin activity. Since the grouping  $-CHOH-CHOH-CHOH-CH_2OH$  possesses three asymmetrical

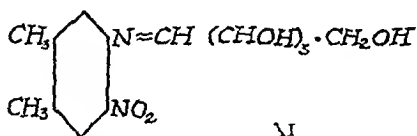


IX

X Salt of the acid  $C_{12}H_{12}N_2O_3$ 

carbon atoms, there existed eight theoretically possible stereoisomers of the proposed structure, one of which presumably would be identical to that in natural riboflavin. The possibility was also tenable that more than one configuration would exhibit vitamin activity. The selection of possibilities which might yield a product identical with the naturally occurring vitamin could be somewhat narrowed in view of the optical activity of the vitamin as isolated. The vitamin exhibited optical activity only in alkaline solution, in which case it was levorotatory, and presumably the relative spacial relations of the  $-H$  and  $-OH$  groups nearest the chromophore group of the vitamin control the sign of rotation. This information narrowed the choice to l-arabinose, d-xylose and d-ribose residues for the hydroxyl-containing side-chain which might be identical with that in the vitamin molecule. The pentyl side-chain corresponding to d-ribose was finally proved to have the same spacial relationships as the side-chain involved in the naturally occurring vitamin. The synthetic d-riboflavin was identical in chemical properties with the vitamin as isolated from various source materials and the mixed melting point (attended with decomposition) of the synthetic and natural products indicated no depression of this constant.

The synthesis of d-riboflavin as developed by Kuhn and his co-workers<sup>28</sup> was the same as that for lumiflavin to the stage of formation of 1,2-dimethyl-4-nitro-5-amino-benzene. This compound on heating with d-ribose yields compound XI. The latter can be reduced with platinum black to give XII. On treatment with alloxan in a mixture of acetic and boric acids, a condensation occurs with the formation of d-riboflavin III.



XI

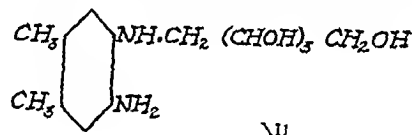
recently<sup>30</sup> have described an improved method giving a yield of about 38 per cent of the theoretical yield calculated on the basis of the quantity of d-ribose employed. Starting with 2 Gm of d-ribose they obtained approximately 2 Gm of riboflavin.

The chief obstacle involved in the preparation of the synthetic vitamin riboflavin is the limited availability of the essential d-ribose. The supply of d-ribose used by both Karrer<sup>30</sup> and Kuhn<sup>28</sup> was prepared from d-arabinose, which in turn was obtained from the calcium salt of d-gluconic acid, a synthesis of five steps summarily attended with considerable losses. Kuhn and his co-workers<sup>28</sup> report that from 2 Kg of the calcium salt of d-gluconic acid (yielding about 500 Gm of d-arabinose) they obtained 53 Gm of d-ribose.

The l-araboflavin has been synthesized<sup>31</sup> and found to possess vitamin activity, but in comparison to d-riboflavin it has been reported<sup>32</sup> to be only about one third as potent.

#### PROPERTIES OF RIBOFLAVIN AND RELATED COMPOUNDS

Syntheses of many derivatives of riboflavin have demonstrated the extremely limited alterations of the structural configuration of the riboflavin molecule compatible with vitamin activity. While the tricyclic chromophore nucleus is common to all flavins, the position and kind of substituent groups on the benzene ring and the nature of the side-chain attached to



XII

the nitrogen atom in position 9 are determinate factors for vitamin activity. The following synthetic flavins have been shown to possess vitamin activity: 6,7-dimethyl-9-[d,l'-ribityl]-iso-alloxazine (riboflavin),<sup>33</sup> 6,7-dimethyl-9-[l'-arabityl]-iso-alloxazine (araboflavin),<sup>31a</sup> 7-monomethyl-9-[d,l'-ribityl]-iso-alloxazine,<sup>21</sup> 6-monomethyl-9-[d,l'-ribityl]-iso-alloxazine<sup>21</sup> and 6-ethyl-7-methyl-9-[d,l'-ribityl]-iso-alloxazine.<sup>21</sup>

At least one of the methyl groups in position 6 or 7 is essential in order that the flavin molecule shall possess vitamin activity. The absence of both the 6 and 7 methyl groups actually appears to be accompanied with toxicity.<sup>21</sup> As regards the side chain, only d-ribose or d-arabinose residues attached to the nitrogen atom in position 9 have thus far proved to be compatible with vitamin activity of the flavins. Exceedingly small variations in this side-chain are attended with complete lack of vitamin activity.

**Fluorescence**—One of the most characteristic properties of riboflavin is its yellow green-fluorescence in neutral solutions. The fluorescence is at a maximum in the region of  $pH$  6.0 to  $pH$  7.0 and decreases in either more acid or more alkaline solutions. This observation would indicate that riboflavin was amphoteric.

<sup>28</sup> Kuhn, Richard, Reinmund, Karl, Weigand, Friedrich, and Strobele, Rudolf. Ueber die Synthese des Lactoflavins (Vitamin B). Ber. d. Deutschen chem. Gesellsch. 68, 1765-1774 (Sept.) 1935.

<sup>29</sup> Karrer, Paul, Becker, B., Benz, F., Frei, P., Salomon, H., and Schopp, K. Zur Synthese des Lactoflavins. Helvet. chim. acta 18, 1435-1448 (Oct.) 1935.

<sup>30</sup> Karrer, Paul, and Meers, H. F. Eine verbesserte Synthese des Lactoflavins und 6,7-dimethyl-9-[l'-arabityl]-iso-alloxazines. Helvet. chim. acta 19, 264-269 (March) 1936.

<sup>31</sup> (a) Kuhn, Richard, and Weigand, Friedrich. Synthetisches Vitamin B. Ber. d. Deutschen chem. Gesellsch. 67, 2084-2085 (Dec.) 1934.

(b) Karrer, Paul, Schopp, K., Benz, F., and Fischer, K. Synthesen von Flavinen III. Helvet. chim. acta 18, 69-79 (Dec.) 1935.

<sup>32</sup> Kuhn, Richard, Rudy, Hermann, and Weigand, Friedrich. Ueber die Zuckerähnliche Seitenkette des Lactoflavins. Ber. d. Deutschen chem. Gesellsch. 68, 625-634 (April) 1935.

<sup>33</sup> Kuhn, Reinmund, Weigand, and Strobele. Karrer and Meers. Wein.

<sup>34</sup> Kuhn, Richard, and Boulanger, Paul. Ueber die Giftigkeit der Flavine. Ztschr. f. physiol. Chem. 241, 233-238 (July) 1936.

teric in nature and that the electrically neutral molecule was responsible for the fluorescence Kuhn and Moruzzi<sup>35</sup> made a series of fluorescence measurements of riboflavin solutions with graded  $p_H$  values. At  $p_H$  1.7, on the acid side, and at  $p_H$  10.2, on the alkaline side, the fluorescence was 50 per cent of its maximum value. Using these data in the generally accepted manner for calculation of the dissociation constants of base, acid and iso-electric point they obtained the following values

$$k_{acid} = 63 \times 10^{-12}, k_{base} = 0.5 \times 10^{-12} \text{ and} \\ \text{iso-electric point, } p_H \text{ 6.0}$$

These authors used ultraviolet rays and were of the opinion that in the region of optimum  $p_H$  the fluorescence brightness was proportional to the riboflavin concentration.

Later, Karrer and his co-workers<sup>36</sup> reported that maximum fluorescence of solutions ( $p_H$  7.0) of riboflavin appeared with concentrations of 0.003 per cent, the fluorescence intensity decreasing with either greater or lesser concentrations. They suggest that Kuhn and his co-workers probably used such dilute flavin solutions that the measurements were all made far below the maximum fluorescence brightness.

The fluorescence measurements for lumiflavin gave practically the same  $k_{acid}$  and  $k_{base}$  constants as those for riboflavin, indicating that the sugar-like side-chain of riboflavin has very little influence on the electrolytic properties of the molecule.<sup>35</sup>

The retinas of the eyes of many species of animals have been reported<sup>30</sup> to contain relatively high concentrations of flavin, the concentration corresponding rather closely to that at which maximum fluorescence occurs. It is supposed that the flavins are involved in some balanced light sensitized reactions concerned with dim vision.

**Optical Activity**—In neutral solutions or in acid solutions wherein the riboflavin exists as a positively charged ion, the optical activity of riboflavin is exceedingly small. In nonfluorescent alkaline solutions of riboflavin the maximum rotation (levo-) was observed<sup>37</sup> when one mole of riboflavin is in the presence of one mole of sodium hydroxide. This maximum rotation was given as  $[\alpha]_D^{20} = \frac{-0.51 \times 100}{0.447 \times 1} = -114^\circ$  (in 0.1 N NaOH). Karrer and Fritzsche<sup>38</sup> confirm this dependence of specific rotation on the relative concentrations of riboflavin and alkali.

**Solubility and Stability**—Riboflavin, owing to the presence of its d-ribityl side-chain, is a typically water-soluble type of compound and is insoluble in the ordinary fat solvents. By splitting off this d-ribityl side-chain the resultant molecule becomes soluble in such solvents as chloroform.

Riboflavin is quite stable in strong mineral acids but sensitive to alkali. Riboflavin is sensitive to light and on irradiation with ultraviolet rays or visible light undergoes irreversible decomposition. Irradiation of alkaline solutions is attended with the formation of lumiflavin,  $C_{13}H_{12}N_4O_2$ . Irradiation of neutral or acid solutions of riboflavin is attended with the formation

of 6,7-dimethyl-alloxazine, or "lumichrome,"<sup>39</sup> which exhibits an intense blue fluorescence.

Riboflavin is quite stable to oxidizing agents, including hydrogen peroxide, bromine water and concentrated nitric acid. It is oxidized by chromic acid, yielding ammonia, carbon dioxide and a nitrogen-free residue.

Riboflavin is reversibly reduced by hydrogen (palladium or platinum and hydrogen, zinc in presence of acid), by sodium thiosulfate and by hydrogen sulfide in alkaline solution and by titanous chloride.

**Oxidation-Reduction Potential**—The very unique as well as complicated oxidation-reduction systems of the flavins have attracted unusual attention and also have caused a considerable volume of literature to be built up.

The flavins represent very stable oxidation-reduction systems, imparting quite reproducible potentials to noble metal electrodes within a reasonable range of buffering capacity. In relation to molecular structure it has been shown<sup>40</sup> that acetylation, methylation or loss of the sugar-like side-chain of riboflavin does not materially affect the oxidation-reduction potential of the flavin. Titration of the completely reduced flavin with a suitable oxidant (or vice versa) at graded  $p_H$  values forms the basis for a series of curves which have been variously reported as corresponding to a one electron system and a two electron system and an intermediate electron system. Apparently the electron number shifts and is different at different ranges of  $p_H$  values, which would account for some of the divergence in reports. According to Stern,<sup>41</sup> the slope of the titration curves in the range of  $p_H$  6.0 to 12.4 corresponds to that of a two electron system. From  $p_H$  4.0 to  $p_H$  1.0 the character of the curves is that of a one electron system, while at  $p_H$  values of less than one the steepness of the curves gradually increases until at  $p_H$  0.4 two maxima appear, indicating a two-stage process. At  $p_H$  values less than 5.0 a red intermediate compound, as first noted by Kuhn and his co-workers,<sup>42</sup> appears, which becomes more pronounced as the two-stage separation is approached at about  $p_H$  0.4.

The normal potential of riboflavin referred to the normal hydrogen electrode is in the region of  $-0.21V$  ( $p_H$  7.0) as reported by many investigators, including those referred to. The physiologic significance of the extremely negative position of the normal potentials of the flavins is not at present understood. Under the general anaerobic reduction potential of living cells, the cell flavin is said<sup>43</sup> to be exactly in its equilibrium range.

In a recent report, Kuhn and Strobele<sup>44</sup> state that in the conversion of riboflavin to leuko-riboflavin no less than three different reduction intermediates intervene and that these are distinguishable by vivid colors and sharp definite compositions.

**Absorption of Light by Flavins**—Riboflavin, lumiflavin and the yellow enzyme exhibit characteristic absorption bands with well defined maxima in approx-

35 Kuhn, Richard and Moruzzi, Giovanni. Ueber die Dissoziationskonstanten der Flavine in Abhängigkeit der Fluoreszenz. Ber. d. Deutschen chem. Gesellsch. **67** 888 891 (May) 1934.

36 Karrer, Paul and Fritzsche, H. Fluoreszenzkurven des Lactoflavins und synthetischer Flavine. Helvet. chim. acta **18** 911 914 (May) 1935.

37 Kuhn, Richard and Rudy, Hermann. Ueber die optische Aktivität des Lacto-flavins. Ber. d. Deutschen chem. Gesellsch. **65** 169 170 (Jan) 1935.

38 Karrer, Paul and Fritzsche, H. Die optische Aktivität des Lacto-flavins. Helvet. chim. acta **18** 1026-1027 (June) 1935.

39 Karrer, Paul, Salomon, H., Schöpp, K., Schlittler, E. and Fritzsche, H. Ein neues Bestrahlungsprodukt des Lacto-flavins. Lumichrom. Helvet. chim. acta **17** 1010 1013 (Oct.) 1934.

40 Kuhn, Richard and Moruzzi, Giovanni. Ueber das Reduktions-Oxydations-Potential des Lacto-flavins und seiner Derivate. Ber. d. Deutschen chem. Gesellsch. **67** 1220 1223 (July) 1934.

41 Stern, R. G. Potentiometric Study of Photo-flavins. Biochem. J. **28** 949 964 (March) 1934.

42 Kuhn, Richard and Wagner, Jauregg, Theodor. Ueber das Reduktions-Oxydations-Verhalten und eine Farbreaktion des Lacto-flavins (Vita-min B). Ber. d. Deutschen chem. Gesellsch. **67** 361 363 (Feb.) 1934.

43 Stern, R. G. Uroflavin, Maltolavin und Redox-Potentials of Lycoporphins. Nature **133** 178 179 (Feb. 3) 1934.

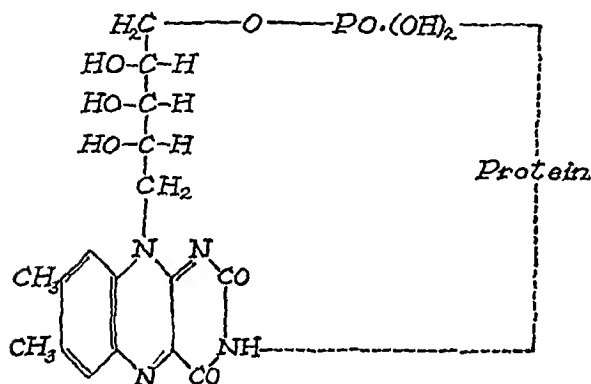
44 Kuhn, Richard and Strobele, Rudolf. Ueber Verdo-, Chloro- und Rhodo-flavine. Ber. d. Deutschen chem. Gesellsch. **70** 753 760 (April) 1937.

mately the same wavelength regions. It is apparent, therefore, that this property resides in the tricyclic chromophore nucleus of the flavins. Riboflavin exhibits definite maxima at approximately 220, 267, 366 and 446 millimicrons. The green fluorescence extends from about 500 to 630 millimicrons. The use of the extinction coefficient especially in connection with the wavelength maximum at 267 millimicrons is useful in measuring the relative purity of riboflavin preparations.

**Flavin Combination in Natural Products**—At least 90 per cent of the riboflavin in milk is in a free dialysable form. In most other materials, such as liver, yeast and green leaves, it occurs in combination with compounds of high molecular weight.<sup>45</sup>

#### VITAMIN ACTIVITY OF RIBOFLAVIN

No fewer than a dozen reports have appeared which carried some semblance of a quantitative relationship between riboflavin dosage and the growth rate of rats on a riboflavin-deficient diet. In many cases, however, such meager data were supplied in these reports relative to the control of the experimental animals that critical examination of the work is impossible. It would seem probable that no two groups of workers had used



XIII Yellow oxidation enzyme (Warburg)

the same riboflavin-deficient diet and probably most of them had not completely eliminated the practice of coprophagy in the experimental animals. The action of micro-organisms is responsible for the formation of flavin in the lower colon.

Kuhn and his co-workers<sup>42</sup> have reported that 7 micrograms of riboflavin was equivalent to a Bourquin-Sherman unit when the Bourquin-Sherman Vitamin G-deficient diet<sup>8</sup> was supplemented with vitamin B<sub>4</sub>. In other words, they state that 7 micrograms of pure riboflavin will support a growth rate of 3 Gm a week in standardized rats receiving this modified Bourquin-Sherman diet.

Von Euler and his co-workers,<sup>46</sup> using a somewhat different diet, report that 2 micrograms of riboflavin correspond to a Bourquin-Sherman unit.

In my experience (unpublished data), 3 micrograms of crystalline riboflavin per rat daily as a supplement to the Bourquin-Sherman diet regularly induced a weekly growth rate of  $3.1 \pm 1.0$  Gm. The practice of coprophagy in these experiments was completely eliminated and the vitamin G-deficient diet was prepared as originally described by Bourquin and Sherman.

The riboflavin requirements are closely related to body size or more particularly to mass of active tissue, a further fact which may help to explain some of the divergence in vitamin values reported for riboflavin.

#### RELATION OF RIBOFLAVIN TO THE YELLOW ENZYME

The yellow oxidation enzyme discovered by Warburg and Christian has been isolated in crystalline form by Theorell.<sup>47</sup> This isolation was accomplished by a combination of cataphoresis and fractionation with ammonium sulfate. Cataphoresis was used principally to separate the enzyme from large amounts of polysaccharides, which would interfere with the subsequent fractionation.

The reversible splitting of the protein and riboflavin components of this enzyme was accomplished by dialysis against dilute hydrochloric acid followed by dialysis against water. By mixing the electrolyte-free water solutions of the components in the cold, the activity of the enzyme for the most part returned.<sup>4</sup>

The molecular weight of the enzyme as calculated by Kerwick and Pedersen<sup>48</sup> from the sedimentation and diffusion data, sedimentation equilibrium data and assuming that the enzyme contains one molecule of riboflavin (molecular weight 376) per molecule of enzyme, gave values in the neighborhood of 80,000. The iso-electric point of the enzyme was found to be about  $p_H$  5.2.

Theorell<sup>49</sup> furthermore found that riboflavin existed in the enzyme as a phosphoric acid ester, a nucleotide combination in which the purine is replaced by riboflavin. Kuhn and his co-workers<sup>50</sup> have succeeded in synthesizing the riboflavin-5'-phosphoric acid ester (6,7-dimethyl-9-d-riboflavin-5'-phosphoric acid) and find it identical with cytoflavin from heart muscle. The phosphoric acid radical is, in fact, one of the connecting links between the riboflavin and the protein component of the enzyme. It has been postulated<sup>51</sup> that the protein component of the enzyme is bound to the phosphoric acid radical and to the free imide group in position 3 of the riboflavin-5'-phosphoric acid ester. Riboflavin itself is much less effective than its phosphoric acid ester in combining with the protein component, while a blocking of the hydrogen atom of the imide group in position 3 prevents the combination of protein and flavin components. Kuhn and his co-workers have, as a result of these observations, expressed the combination of protein and riboflavin phosphoric acid ester as shown in formula XIII. A less active enzyme is formed by combination of riboflavin (unesterified) and the protein component solely through the imide grouping of the former at position 3. This combination is broken by dialysis against distilled water at  $p_H$  7.0.

The yellow oxidation enzyme contains 15.9 per cent of protein and 0.043 per cent of phosphorus. It also possesses at least three distinct absorption maxima at wavelengths of 265, 380 and 465 millimicrons. For

47 Theorell, Hugo. Reindarstellung (Kristallisation) des Gelben Atmungsfermentes und die reversible Spaltung des selben. *Biochem. Z.* **272**, 135-136 (July) 1934.

48 Kerwick, R. A. and Pedersen, K. O. Some Physicochemical Characteristics of the Yellow Respiratory Enzyme. *Biochem. J.* **30**, 2291-2293 (Dec.) 1936.

49 Theorell, Hugo. Leber die Wirkungsgruppe des Gelben Ferments. *Biochem. Z.* **275**, 37 (Dec.) 1934.

50 Kuhn, Richard, Rudy Hermann and Weygand, Friedrich. Leber die Bildung eines künstlichen Ferments aus 6,7-dimethyl-9-d-riboflavin-5-phosphorsäure. *Ber. d. Deutschen chem. Gesellschaft* **69**, 2034-2036 (Sept.) 1936.

51 Kuhn, Richard and Rudy Hermann. Katalytische Wirkung der Lactoflavin-5-phosphorsäure synthese des Gelben Ferments. *Ber. d. Deutschen chem. Gesellschaft* **69**, 1974-1977 (Aug.) 1936.

45 Kuhn, Richard and Kalschmitt, Hans. Ueber den Zustand des Vitamins B in der Kuhmilch. *Ber. d. Deutschen chem. Gesellschaft* **68**, 586-587 (Feb.) 1935.

46 von Euler, H., Karrer, Paul, Adler, E. and Malmberg, M. Ueber die Wachstumswirkung der Flavine. *Helvet. chim. acta* **17**, 1157-1165 (Oct.) 1934.

further details of the chemical and enzymatic properties of this enzyme the reader is referred to the review by Theorell<sup>2</sup>

The role of riboflavin as a component of an oxidation enzyme present presumably in all living cells explains some of the observations which were so baffling only a few years ago. Animals subsisting on riboflavin-deficient diets for any considerable period were invariably in a more critical condition than outward and obvious signs could indicate. They appeared for quite some time before death to be on the verge of collapse. This condition would seem to be a necessary corollary to the cellular asphyxiation brought about by a lack of a cellular oxidation catalyst.

#### SUMMARY

Riboflavin (6,7-dimethyl-9- [d-riboityl] -iso-alloxazine) is a yellow green-fluorescent water-soluble pigment widely distributed throughout both the plant and the animal kingdoms.

Through its iso-alloxazine nucleus it is related to and possesses a combination of the chemical properties of a substituted benzene, an azine dye and a pyrimidine. In addition, riboflavin possesses a ribityl side-chain attached to the N-atom in position 9, which relates it to the pentose sugars.

Riboflavin forms a phosphoric acid ester (riboflavin-5'-phosphoric acid) which combines with a protein to yield a yellow oxidation enzyme. This enzyme is presumably present in every living cell, at least in the cells of all higher forms of life, and is concerned with the chemical reactions involved in cell respiration.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION  
OF THE FOLLOWING REPORT      HOWARD A. CARTER, Secretary

### WESTERN ELECTRIC 3-A ELECTRICAL STETHOSCOPE ACCEPTABLE

Manufacturer: Western Electric Company, 195 Broadway, New York

This portable electrical stethoscope is designed to aid the physician in hearing heart sounds and in diagnosing heart ailments. It has been developed particularly for physicians with impaired hearing, according to the firm. However, it is equally recommended as useful to the physician with normal hearing in examining thick-chested individuals or detecting heart conditions during their early stages. It is claimed by the firm that other useful applications will be found in obstetric and lung fields.

Readily portable, the instrument is housed in a small fabricoid carrying case, 12½ by 8¾ by 4¾ inches, weighing approximately 14 pounds. This contains the entire equipment, consisting of tubes and electrical wiring, six dry cell batteries and a space containing the microphone receiver and cable. Provision is made for an additional receiver to be connected with the stethoscope so that two physicians may listen to heart sounds from the same patient simultaneously.

The Electrical Stethoscope essentially consists of a sensitive microphone, a vacuum tube amplifier and a receiver to reproduce the sounds. The two-stage amplifier, operated by dry batteries, will increase the loudness of the heart sounds about 20 decibels, or 100 times the intensity obtained with an ordinary acoustical stethoscope. The amplifier has a maximal gain of 60 decibels. Its frequency gain characteristic is essentially flat over a range in excess of that covered by the pick-up. This pick-up is

unresponsive to extraneous sounds and has a frequency range running from 60 to 1,500 cycles, which covers the frequency range of heart sounds, according to the firm. It contains a filter which may be cut in or out of the circuit by means of a switch located on the front of the instrument, accentuating murmur sounds. The filter control diminishes the response at both the low and high frequencies. Thus the intensity of normal heart sounds is lowered and the loudness of any existing murmurs is accentuated by the isolation.

The batteries are stored in the two bottom compartments of the chassis. These are a filament battery, consisting of four flashlight cells No. 950 and two No. 768 plate batteries. The latter are of the plug-in type, with their terminals attached to receptacles mounted in the top of the battery. This simplifies replacement, since the leads used to connect them terminate in polarized plugs, so that they cannot be incorrectly inserted.

Like the pick-up, the telephone type receiver is provided with a special cap to allow attachment of the tubes of an acoustic stethoscope. These tubes modify the quality of the sounds heard and are employed with this instrument instead of headphones so that the sounds heard will be as nearly as possible like those heard with the usual stethoscope.

A single volume control is provided which turns the amplifier off at the extreme left position and gives increased volume when turned to the right. The filter switch is the only other control and is used only when murmurs are suspected.

The unit was investigated in a clinic satisfactory to the Council. It was reported that the instrument distorts in a measure the heart and breath sounds so that a certain amount of experience is necessary to learn the normal sounds as produced by it. It did not appear to bring to light murmurs that are inaudible to the ordinary stethoscope.

In view of the foregoing report the Council on Physical Therapy voted to include the Western Electric 3-A Stethoscope in its list of accepted devices.



Western Electric 3-A Stethoscope

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

**SULFANILAMIDE-LILLY** (See THE JOURNAL, Oct. 23, 1937, p. 1365, and Revised Supplement to New and Nonofficial Remedies, 1937, p. 29)

The following dosage form has been accepted:

*Sulfanilamide Tablets 7½ grains*

**SILVER NITRATE** (See New and Nonofficial Remedies, 1937, p. 431)

*Ampoules Silver Nitrate Solution 1 per cent Abbott* Each wax ampule contains approximately 0.5 cc. of a solution of silver nitrate U. S. P. 1 per cent in chemically pure water. For the prevention of ophthalmia neonatorum two drops of the solution are instilled under the lower lid of each eye of the newborn after suitable cleansing.

Prepared by the Abbott Laboratories, North Chicago, Ill. No U. S. patent or trademark.

**PROCAINE-ABBOTT** (See New and Nonofficial Remedies, 1937, p. 69)

The following dosage form has been accepted:

*Procaine Hydrochloride ½ grain Epinephrine ⅓ 000 grain Hypodermic Tablets* Each contains procaine hydrochloride Abbott 0.02 Gm. (⅓ grain) epinephrine 0.000016 Gm. (⅓ 000 grain) sodium bisulfite 0.0016 Gm. (140 grain) and sodium chloride sufficient so that when the tablet is dissolved in 1 cc. of water the resulting solution is approximately isotonic.

52 Theorell, Hugo, Das Gelbe Oxidationsferment. *Biochem. Ztschr.* 278: 263-290 (June) 1935.

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SATURDAY, APRIL 2, 1938

## WHEELER-LEA BILL GIVING FEDERAL TRADE COMMISSION JURISDICTION OVER FOODS, DRUGS, DEVICES AND COSMETICS BECOMES A LAW

Unfair and deceptive acts and practices in the exploitation and sale of foods, drugs, diagnostic and therapeutic devices and cosmetics in interstate and foreign commerce, even though not involved in commercial competition, will shortly come under the jurisdiction of the Federal Trade Commission through the operation of the Wheeler-Lea Act,<sup>1</sup> approved March 21 by the President. The act becomes effective on the expiration of sixty days immediately following the date of its approval. The jurisdiction of the Federal Trade Commission over unfair and deceptive acts and practices is now limited to such as constitute or form a part of unfair methods of commercial competition. The act just approved will give the commission, too, specific jurisdiction over the advertising of foods, drugs, diagnostic and therapeutic devices and cosmetics, whenever such advertising is disseminated in interstate and foreign commerce. Advertising that is disseminated or displayed only locally will come within the jurisdiction of the commission if it is designed to promote interstate and foreign commerce in the goods advertised. Only in event of proved danger to health or deliberate fraud will the offender be liable to fine and imprisonment. Under all other conditions, he will be subject only to a money penalty, to be recovered by civil suit, and then only after he has ignored a cease and desist order issued by the commission. A cease and desist order can be issued only after notice and hearing, with the right of appeal to the courts, a process that will normally occupy not less than ninety days. Appeals to the courts may possibly delay its effectiveness over a period of years.

After the new act becomes effective, no person, except as specifically stated, can lawfully disseminate any false advertisement of any food, drug, diagnostic or therapeutic device or cosmetic by mail. No one can dis-

seminate such an advertisement in interstate or foreign commerce by any means to induce the purchase of the merchandise named. Neither can any one disseminate a false advertisement even locally if it is designed to induce the purchase of such merchandise in interstate or foreign commerce. A "false advertisement" within the meaning of the act is any advertisement, other than labeling, that is misleading in a material respect. In determining whether an advertisement is or is not misleading, the commission must take into account not only representations made or suggested in it but also the extent to which it fails to reveal facts material in the light of such representations, or facts that are material with respect to the consequences which may result from the use of the commodity to which the advertisement relates, under the conditions prescribed in the advertisement or under such conditions as are customary or usual. In the case of a drug, however, no advertisement is to be deemed false that is disseminated only to the members of the medical profession, contains no false representation of a material fact, and includes or is accompanied in each instance by a truthful disclosure of the formula, showing quantitatively each ingredient. Publishers, radio broadcast licensees, and agencies or mediums for the dissemination of advertising, except the manufacturer, packer, distributor or seller of the commodity to which the false advertisement relates, are to be immune from punishment if they disclose, on request of the Federal Trade Commission, the name and post office address of the manufacturer, packer, distributor, seller or advertising agency in the United States that caused the dissemination of the false advertisement.

False advertising is to be regarded ordinarily as an unfair or deceptive act or practice and proceeded against by notice, hearing and the issue of a cease and desist order, subject to appeal to the courts. If, however, the commodity advertised may be injurious to health because of results from use under the conditions prescribed in the advertisement or under such conditions as are customary or usual, or if the advertisement is disseminated with intent to defraud or mislead, the advertiser may be prosecuted criminally without previous notice and fined and imprisoned. If the Federal Trade Commission believes that any person, partnership or corporation is disseminating or about to disseminate any false advertisement of a food, drug, diagnostic or therapeutic device or cosmetic and that the interest of the public requires that the dissemination of that advertisement be prevented or suspended pending final action by the commission, the commission may appeal to the court for an injunction or restraining order, which may be issued if it does not delay the delivery of any particular issue of a newspaper, magazine, periodical or publication, published at regular intervals, provided the publisher has not, in order to evade the requirements of the act, purposely concealed the misleading character of the advertisement so long

<sup>1</sup> Public Law 447—75th Congress. An Act to amend the act creating the Federal Trade Commission to define its powers and duties and for other purposes.

that any change necessary to make it truthful would delay publication of the periodical

The provisions of the new act that relate to advertising originated in bills designed to safeguard the public against fraud and danger to health through the distribution in interstate and foreign commerce of adulterated and misbranded foods, drugs, diagnostic and therapeutic devices and cosmetics. The advertising provisions in the present act were lifted bodily from the Copeland food and drugs act, S. 5, which has passed the Senate, and, after modification, were included in the act which has just been approved. Jurisdiction over the advertising of foods, drugs, diagnostic and therapeutic devices and cosmetics is therefore to be vested in the Federal Trade Commission, while jurisdiction over the labeling of such products will be left to the Secretary of Agriculture. There will be similar division of authority with respect to the general control of such merchandise. While the Secretary of Agriculture is still to retain specific control over adulteration and misbranding, the Federal Trade Commission can at any moment take jurisdiction on the ground that adulteration and misbranding constitute unfair or deceptive acts or practices and therefore come within its jurisdiction. Inevitably such division of authority with respect to labeling and advertising and such duplication of authority with respect to adulteration and misbranding will lead to conflicts. The enlarged jurisdiction of the Federal Trade Commission will necessitate an increase in personnel and laboratory resources, if effective work is to be done. The public should be aware of the situation and the medical profession must continue to investigate and to protect the public until it is satisfied that this act as administered is affording the protection that is required.

#### A NEW SOURCE OF BLOOD FOR TRANSFUSION

The theory that fetal blood possesses a high immunobiologic antitlastic quality against neoplasms caused Bruskin and Farberova<sup>1</sup> of the Oncologic Institute of Moscow to attempt the use of placental blood for massive transfusions during surgical treatment of malignant neoplasms. The blood was obtained from the umbilical vein and the placenta of the new-born. The amount obtainable from one placenta varied between 50 and 120 cc. It was found that the hemoglobin of the placental blood varied from 90 to 120 per cent (the method of determination not stated), erythrocytes from 5,000,000 to 6,000,000, and leukocytes from 8,000 to 16,000, with a definite lymphocytosis (from 32 to 46 per cent). The reticulocytes varied from 11 to 30 in 1,000 cells. The observers believe that placental blood contains a number of hormones of ovarian and anterior pituitary origin. The blood was conserved for

from six to ten days. Bruskin and Farberova estimate that two thirds of the 60,000 annual births in Moscow could be used for the provision of placental blood. An average of 50 cc from each birth would yield 2,000 liters, or an amount sufficient for from 6,000 to 8,000 blood transfusions.

Stavskaya<sup>2</sup> reported in 1937 on the use of retroplacental blood in the obstetric-gynecologic clinic of the Mother and Child Institute in Kiev. She likewise emphasized the distinguishing characteristics of the placental blood to be its high hemoglobin content, increased morphologic elements, considerable content of bilirubin, high sugar content, and low cholesterol and alkali reserve. The blood contains estrogen, gonadotropic substance and an epinephrine-like substance. It is also distinguished by its rapid coagulability. The amount of blood obtainable from a retroplacental hematoma varied from 80 to 300 cc. The isoagglutination properties of the placental blood are sharply defined and the blood grouping corresponds always to that of the mother's blood. Stavskaya found that the placental blood in vitro has little tendency to coagulate and may be kept without preservatives for from ten to twelve days.

Goodall, Anderson, Altman and MacPhail<sup>3</sup> have demonstrated that emptying the placenta of its blood does not appreciably influence either the time of its separation or its completeness. They have adopted much the same technic as did the Russian workers and confirmed all of the advantages claimed for the method. They have adopted, after some experimentation, a preservative proposed by the Moscow Institute of Hematology and consisting of sodium chloride 7 Gm, sodium citrate 5 Gm, potassium chloride 0.2 Gm, magnesium sulfate 0.004 Gm, and bidistilled water 1,000 cc. They found that it was not necessary to take cultures of the preserved blood because contamination does not take place at the low temperature at which the blood is preserved. Slightly progressive hemolysis was found to occur after the first fifteen days. This, however, they found to be no barrier to a normal transfusion. The reason for the innocuousness of this hemolysis lies in the fact that the hemolysis is small in quantity and is apparently inoperative in the recipient. They comment on the fact that the polycythemia of a child at birth leads to the destruction of a number of red cells when the lungs come into operation. The breaking down of these cells is the cause of many of the cases of hemolytic jaundice in the new-born. They advance this explanation to meet the argument that taking of blood from the placenta deprives the new-born infant of its rightful due. They found also that fetal blood contains from 20 to 35 per cent

<sup>2</sup> Stavskaya E. Transfusion of Placental and Retroplacental Blood. *Novy khir arkhiv* 37 72 No 145 1937 abstr J A M A 108 1226 (April 3) 1937.

<sup>3</sup> Goodall J R, Anderson T O, Altman G T and MacPhail F L. An Inexhaustible Source of Blood for Transfusion and Its Preservation. *Surg Gynec & Obst* 66 176 (Feb) 1938 abstr this is ue p 1148.

<sup>1</sup> Bruskin Ya M and Farberova R S. Use of Umbilical and Placental Blood for Massive Transfusions in Surgery. *Soviet vresh zhur* 10 1546 (Oct 30) 1936 abstr J A M A 107 2098 (Dec 19) 1936.



more coagulation power than that of adult blood. This appears to be nature's provision to prevent exsanguination of the new-born in animals in which the cord is torn or bitten. This property presents an advantage in transfusion for hemorrhage. The authors feel that preserved blood has many advantages over fresh blood. It eliminates food and other extraneous allergic reactions. In many transfusions there did not occur a single untoward reaction or rise of temperature. Two or more fetal bloods may be given simultaneously if necessary after separate matching. They suggest that a maternity section of a general hospital is capable of giving more than enough blood for the needs of the whole institution and that the blood can be sent to other institutions in adequate vacuum containers if the group of the recipient is known. The method appears to be an efficient and inexhaustible source of blood for transfusion.

### SYNERGIC EFFECTS OF ANTIGENS

When two or more simple antigens are injected simultaneously into laboratory animals, the usual antibody response may be modified. This modification may be a suppression, perversion or augmentation of specific antibody formation against one or more of the individual antigens. The earliest description of this phenomenon was the observation by Burky and his co-workers<sup>1</sup> at Johns Hopkins University that rabbit lens proteins are not antigenic for rabbits but that the lens protein complex can be rendered antigenic by simple fractionation. The alpha fraction causes high titer precipitin production in rabbits. While both the beta and gamma fractions are antigenically inactive, each has the property of suppressing antibody production against alpha proteins.

A teleological explanation of this relationship might assume that the crystalline lens had developed a protective mechanism consisting of specific inhibitors and that the absorption or internal secretion of these inhibitors prevent the formation of antigens precipitin which otherwise might cause degenerative changes in the eye. If this explanation is correct, a biologic theorist would postulate the existence of similar local antigenic inhibitors in other highly specialized organs or tissues, particularly the endocrine glands. Endocrine therapy is often self limiting because of the antigenicity of available preparations of hormones. The resulting antiendocrine immunity not only limits therapeutic action but may lead to autotoxic degeneration of homologous endocrine glands.

Of even greater clinical promise is the opposite phenomenon, the augmentation of antibody response in certain mixed antigens. Burky<sup>2</sup> for example found that, while pollen extracts are practically nonantigenic for rabbits, high-titer antibodies can be produced against pollens if they are "synergized" or "potentiated" by the addition of staphylococcus toxin. Swift and

Schultz<sup>3</sup> of the Rockefeller Institute have confirmed this observation and have found that it is not necessary to mix the staphylococcus toxin with the nonantigenic protein before injection. The two may be injected independently, as by different routes or at different times, and still produce augmented antibody response. They also found several substances other than staphylococcus toxin that can function as antigenic energizers.

Among the latest confirmations of the Burky phenomenon are the observations by Magerl<sup>4</sup> of the Hygienic Institute at the University of Innsbruck, who studied the synergic antigenicity of different blood mixtures. Magerl found that horse, ox, swine and sheep erythrocytes would each cause prompt production of specific amboceptor in rabbits but a mixture of two or more specimens of blood is often relatively nonantigenic. Other mixtures, such as of sheep and horse erythrocytes, cause about ten times the normal antibody response. The amboceptors appear more promptly, are of higher titer and persist longer than in the control injections with individual sheep or horse blood.

Apparently an attempt has not yet been made to formulate a theory as to the chemical or physiologic mechanism by which these antigenic mixtures inhibit or augment antibody synthesis. The discovery of these two synergic phenomena, however, stimulates hope of renewed clinical victories in many fields of vaccine therapy and serum therapy. A nonantigenic solution of posterior pituitary or a successfully "potentiated" tuberculin are not beyond the realm of possibility.

### Current Comment

#### COMMERCIAL ASPECTS OF J THOMPSON STEVENS—A "MIRACLE MAN"

In the *Cosmopolitan* for March 1938 Mr. Rex Beach, pursuing his devious course through his conception of the great prophets in medicine, devotes some space to the work of Dr. J. Thompson Stevens of New York City and lists him with the "Modern Miracle Men." Among the previous inhabitants of niches in Mr. Rex Beach's hall of medical fame are Mahlon Locke of Canada, Hiss of California and a number of nondescript faith healers and promoters of unestablished methods of more or less scientific disrepute. The selection of Dr. Stevens would seem to be extraordinary, since he is listed as a member of the Radiological Society of North America and of the American Roentgen Ray Society as well as of the New York State Medical Society and the New Jersey State Medical Society. A brief analysis of the article by Mr. Beach indicates that Dr. Stevens is, in Mr. Beach's opinion, capable of performing miracles in the healing of infections of the sinuses and in the removal of the tonsils by the use of the roentgen ray. The scientific evidence available as to these perform-

<sup>1</sup> Burky, E. L. and Woods, A. C. *Arch. Ophthalm.* 57: 41 (Jan.) 1928.  
Woods, A. C., Burky, E. L. and Woodhall, M. B. *Tr. Am. Ophth. Soc.* 29: 168, 1931.  
<sup>2</sup> Burky, E. L. *J. Allergy* 5: 466 (July) 1934.

<sup>3</sup> Swift, H. T. and Schultz, M. P. *J. Exper. Med.* 63: 703 (May) 1936.

<sup>4</sup> Magerl, J. *Ztschr. f. Immunitätsforsch. u. exper. Therap.* 90: 327 (May 27) 1937.

ances is obviously not such as to support these contentions. What appears to be an unusual feature of this exploitation of Dr Stevens is the development of a commercial setup for suitable exhaustion of the available profits from this type of promotion. In some manner a young woman called Miss Phoebe Elkins seems to be associated with the promotion. Characterizing herself as a publicity woman, she has called on physicians indicating that it is her business to arrange publicity for doctors and that she aided Mr Beach in finding Mahlon Locke and Stevens for his literary purposes. Writing on the stationery of Dr Stevens, she indicates also that she arranges medical consultations for people who are attracted by the articles in the magazine either with the "hero" of the article by Mr Beach or with associates in neighboring cities.

"We are greatly in need of a good diagnostician and Roentgenologist to become affiliated with us in your vicinity. As you undoubtedly know Dr Stevens is considered one of the finest Roentgenologists in the East and because of his ability we are deluged with requests for an associate in various parts of the country. From what I understand you fill the above qualifications. Therefore, I am wondering if you would enjoy an affiliation in your vicinity with our main offices, namely, New York City and Montclair, New Jersey."

These, it appears, will be asked to treat the patients and then remit to her one third of the gross amount to be received from such treatments. The physician who supplies the information concerning his contact with Miss Elkins was offered the concession in a neighboring city and was informed that there was some \$25,000 worth of business which had been developed by the publication of Mr Beach's article. As we go to press information is received indicating that the astute promoters are also recommending application of the x-rays for the control of gonorrhea. Obviously this entire performance smells to high heaven from an ethical point of view. The public needs protection against such unwarranted commercial exploitation. Incidents of this type are the actual proof of the necessity for principles of ethics to control advertising and exploitation of physicians.

#### THIAMIN CHLORIDE AND NICOTINIC ACID IN PELLAGRA

Elsewhere in this issue (page 1081) is an article by Spies and Ating on the effect of the administration of vitamin B<sub>1</sub> on the peripheral neuritis of pellagra. Observations are recorded in six cases of classic pellagra with peripheral neuritis, in four of which pellagra had developed after alcohol had been largely substituted for a balanced dietary. Irrespective of the cause of the pellagra, prompt relief of spontaneous neuritic pain resulted from the intravenous injection of thiamin chloride (crystalline vitamin B<sub>1</sub> hydrochloride). These observations suggest that vitamin B<sub>1</sub> deficiency plays a part in the development of clinical manifestations of peripheral neuritis associated with pellagra. Since some patients fail to absorb vitamin B<sub>1</sub> by mouth, it seems to be necessary to give them parenteral injections. The vitamin B<sub>1</sub> does not appear to cure the glossitis and stomatitis of pellagra but nicotinic acid, which has been referred to in an editorial

in THE JOURNAL<sup>1</sup> as well as in a recent article by Spies and his co-workers,<sup>2</sup> does relieve these symptoms. Taken together these interesting observations made by the Cincinnati investigators leave little doubt that pellagra, or at least some of its manifestations, is the result of more than one factor. They have demonstrated that all types are benefited within twenty-four to forty-eight hours after the administration of nicotinic acid. Certainly both thiamin chloride and nicotinic acid deserve further intensive study in their relation to pellagra.

#### GOVERNOR CHANDLER OF KENTUCKY GIVES HIGH PRAISE TO AMERICAN PHYSICIANS

Refreshing as a spring breeze is the following statement by Gov A B Chandler of Kentucky at the dedication of a new wing of the State Tuberculosis Sanitarium at Hazelwood, Ky, March 28.

Kentuckians are very proud of the distinguished history of its medical profession. The first medical school in the West was Transylvania at Lexington, and no institution in this country made a greater contribution to the public health and welfare of its day.

Now, for more than a hundred years, those in charge of public affairs have left medical and health problems to the doctors. More progress has been made in public health and medical service than in any other human activity in Kentucky. I am convinced that this is because the responsibility for it has been placed squarely on the shoulders of the medical profession.

In the last fifty years, the death rate has been reduced two thirds, acute diseases have been reduced as much as in any other state, we have more full-time health departments than any other state. This organization has been entirely medical from its beginning, and its principles have been determined and its activities controlled by physicians of the state. We realize fully that our doctors have made the largest contribution in value to the welfare of our citizens of any group. So far as it has been possible for them to do so, they have given the same service to rich and poor alike. Seventy-five years ago the average age at death in Kentucky was 32 years, last year it was 61 years. This of course, means that many more people are living in the older groups.

We must realize that this older average population presents us with a tremendous problem, we must make the same study and take the same care of chronic and degenerative diseases that formerly we have so successfully accomplished with the infectious diseases.

Opportunists talk very glibly about health insurance, the socialization of medicine and the regimentation of physicians as the remedy for this situation. Such suggestions will receive no support by the people of Kentucky. We will continue to be guided in regard to public health and medical service by our doctors.

Recently Dr Irvin Abell, President-Elect of the American Medical Association, has informed me of the study of medical service and the provision for medical care for the indigent, which study is being undertaken by the American Medical Association. He properly advances the concept that the organized medical profession is the family physician of the commonwealth and that it should examine the resources for medical service and that it should show exactly what they should do to obtain all the benefits of modern scientific medicine.

Realizing that the profession has been very busy in reducing the death rate from acute and infectious diseases, we will patiently await their examination and diagnosis in regard to

<sup>1</sup> Pellagra and Nicotinic Acid editorial J A M A 110 289 (Jan 22) 1938

<sup>2</sup> Spies T D Cooper Clark and Blankenhorn M A The Use of Nicotinic Acid in the Treatment of Pellagra J A M A 110 622 (Feb 26) 1938

the medical conditions which confront us, and we will be guided by them with perfect confidence that they will continue to give our people all that modern science can give toward making Kentucky the healthiest, the happiest and the most effective people in these United States

The medical profession is proud of this tribute to its record of the past, grateful for this judgment of what medicine is trying to do in the present, and appreciative of the confidence of Governor Chandler in medicine's future

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, HOSPITALS, EDUCATION AND PUBLIC HEALTH)

### ALABAMA

**State Medical Meeting at Mobile April 19-21**—The Medical Association of the State of Alabama will hold its annual meeting at the Battle House in Mobile, April 19-21, under the presidency of Dr Edward S Sledge, Mobile. The following speakers will participate:

- Dr Lawrence H Hinton, Mobile. Review of Some External Eye Diseases
- Dr James Otis Lisenby, Atmore. Diagnosis and Treatment of Tumors of the Breast
- Dr Frank A Kay, Tuscaloosa, Metrazol Treatment of the Psychoses
- Dr Chalmers H Moore, Birmingham. Head Injuries
- Dr Joe H Little, Mobile. Progress in the Treatment of Diabetes
- Dr Benjamin F Byrd, Nashville, Tenn. The Insurance Triangle
- Applicant Examiner Company
- Dr Robert S Hill, Montgomery. Medicine as a Profession
- Dr John H Musser, New Orleans. Treatment of Organic and Inorganic Diseases of the Stomach
- Dr John W Means and Camille J DeLor, Columbus. Surgery of Biliary Passages with Reference to the Hazards and Their Management
- Dr Charles N Leach, Montgomery. Rabies
- Dr Albert Graeme Mitchell, Cincinnati. Practical Application of Studies on Gastro Enteritis
- Dr Henry F Helmholz, Rochester, Minn. Abdominal Tumors in Childhood
- Dr Oscar W Betha, New Orleans. The Pneumonias

A symposium on obstetrics will be presented Tuesday evening by Drs James R Garber, Birmingham, and Archie E Thomas, Montgomery. Dr Thomas M McMillan, Philadelphia, will deliver the Jerome Cochran Lecture Wednesday morning on "An Optimistic View of Some Problems of Heart Disease." Dr Charles A Mohr, Mobile, will open a public meeting Wednesday, the speakers will be Dr Alice C Evans, Washington, D C, on "Undulant Fever as a Public Health Problem" and Dr James N Baker, state health officer, Montgomery, "What the State Department of Public Health Is Doing for the Citizens of Alabama." The thirteenth annual meeting of the Woman's Auxiliary to the state medical association will be held at the Cavithon Hotel in Mobile April 19-21. The thirteenth annual session of the Alabama Pediatric Society will be held at the Battle House April 18. The speakers will include Dr Mitchell on "Is the Pediatrician a Psychiatrist?", Dr Helmholz, "Treatment of Acute Urinary Infections in Childhood", Dr Joseph Yampolsky, Atlanta, Ga, "A Comparative Review of the Drugs Used in the Treatment of Syphilis." Drs Mitchell and Yampolsky will also address the evening session.

### CALIFORNIA

**Course on Diseases of Digestive Tract**—The University of California Medical School, San Francisco, will conduct a short graduate course in diseases of the digestive tract April 13-16. Instruction will be given by lectures, demonstrations and surgical clinics. The fee will be \$20. Further information may be obtained from Dr Langley Porter, dean of the medical school, Medical Center, San Francisco.

**Society News**—A symposium on rabies was presented before the Pasteur Society of Central California March 3 in San Francisco by Drs Jacob C Genger, director of health of San Francisco, Harry E Foster, medical director, Cutter Laboratories, Berkeley, and Jacob Traum, M.S., professor of veterinary science, University of California.—Dr Emile F Holman discussed "Medicine in Scandinavia" before the San Francisco County Medical Society March 8 and Karl F Meyer, Ph.D., "Medical Impressions from a Recent European Trip." Both talks were illustrated with colored slides.—Dr Clifford

B Walker was recently elected president of the Los Angeles Society of Ophthalmology and Otolaryngology and Dr John P Lordan, secretary.—At a joint meeting of the Los Angeles County Medical Association with the Southern California Retail Druggists Association, March 17, Mr Frank E Mortensen, secretary of the latter group, among others, discussed "Proceptive Legislation of Interest to Medicine and Pharmacy."—A round table discussion on "Treatment of Infection by Means of Small Doses of Insulin" was a feature of a joint dinner meeting of the Los Angeles Society of Ophthalmology and Otolaryngology and the Research Study Club of Los Angeles, March 28.

### COLORADO

**First Full Time Health Unit**—The first full time county health unit in Colorado was opened in Otero County February 7. Dr Lynn J Lull, formerly in private practice in Olathe, has been appointed health officer with headquarters at La Junta. The unit is maintained jointly by the county and the state in cooperation with the Otero County Medical Society. Plans are under way for the organization of a second unit.

### CONNECTICUT

**The Ferris Lecture in Anatomy**—Samuel R Detweiler, Ph.D., professor of anatomy, Columbia University College of Physicians and Surgeons, New York, delivered the fifth Harry Burr Ferris Lecture at the Yale University School of Medicine, New Haven, March 2, his subject was "Vertebrate Visual Receptors."

**Society News**—Dr Jerome M Lynch, New York, will address the New England Proctologic Society in New Haven April 22 on "Lynch's Modification of the Permeal Operation." The society was organized in Hartford in November 1937 with Dr Albert R Keith, Hartford, president, Dr Frederick S Ellison, Hartford, secretary, and Dr Simon B Klemer, New Haven, chairman of the executive committee.—Dr Harry M Zimmerman, New Haven, will address the Fairfield County Medical Association April 12 in Bridgeport on "Vascular Diseases of the Central Nervous System." Dr Clarence L Robins, New Haven, will discuss "Edema, Its Differentiation and Treatment."

### GEORGIA

**Society News**—Dr William G Hamm, Atlanta, among others, discussed "Fractures of the Jaw" before the Fulton County Medical Society March 17. Dr Edgar F Fincher Jr, Atlanta, among others, presented a paper before the society, February 3, on "Sciatica and Low Back Pain—The Result of Ruptured Intervertebral Cartilage."

**Dr Warren Lectures in Atlanta**—Dr Shields Warren, Boston, delivered a series of lectures at the Academy of Medicine, Atlanta, under the auspices of the Atlanta Clinical Society March 23-25. His subjects were "Recent Advances in the Pathology of Diabetes Mellitus," "Pathology of the Thyroid Gland" and "Radiosensitivity of Tumors."

### ILLINOIS

**Personal**—Dr Robert H Bell, health officer of Carlinville, has been appointed full-time superintendent of the district health unit composed of the counties of Scott, Morgan, Greene, Calhoun, Jersey and Macoupin.

**Society News**—A joint meeting of the Mercer and Rock Island county medical societies in East Moline, March 8, was addressed by Drs John S Coulter, Chicago, on "Hyperpyrexia" and "Home Treatment of Chronic Arthritis with Physical Agents"—Dr Paul H Harmon, Chicago, addressed the Adams County Medical Society, Quincy, February 14, on "The Illinois Plan for the Care of Crippled Children."

### Chicago

**Dr Joslin Will Address Medical Society**—Dr Elliott P Joslin, clinical professor of medicine, Harvard University Medical School, Boston, will address the Chicago Medical Society April 6 on "Present Conceptions of Diabetes Mellitus."

**Dr Pearl to Speak on Longevity**—Raymond Pearl, Ph.D., professor of zoology, Johns Hopkins University School of Medicine and the School of Hygiene and Public Health, Baltimore, will deliver a public lecture at Thorne Hall April 15, under the auspices of the Institute of Medicine of Chicago. The title of his lecture will be "Long Life and Living."

**Society News**—Drs Morris Fishbein, Editor, THE JOURNAL and Rosco G Leland, Director, Bureau of Medical Economics, American Medical Association, will address the

North Side Branch of the Chicago Medical Society at the Drake Hotel April 7, 8 p. m., their subjects will be "Medicine and the National Policy" and "Hospital Service Plans" respectively.

**Hospital Groups Merge**—The Chicago Hospital Association and the Chicago Hospital Council have been consolidated, the former to be the administrative section, according to the Chicago *Tribune*. Membership in the association was restricted largely to administrative heads of hospitals, while the council included superintendents, board presidents and chiefs of staff. The council had twenty-six member hospitals and the association twenty-three.

**Measles Unusually Prevalent**—There were 24,363 cases of measles reported during the first seventy-six days of 1938, according to the Chicago *Tribune* March 21, recording a new high total for the city. This total was 164 more cases than that recorded for the entire year of 1935, the previous peak year. In the same period in 1937 only 259 cases were reported, while the total for the year was only 496, it was stated. The largest number of cases reported in a single day was 743 on March 10. Since the first of the year there have been twenty-one deaths attributed to measles, while in the same period in 1935 there were nineteen.

## INDIANA

**New Department Organized**—The creation of a new department of bacteriology and public health and a new department of pathology at Indiana University School of Medicine, Indianapolis is announced. The former department of bacteriology and pathology was divided and bacteriology was combined with the division of public health. Dr. Thurman B. Rice, professor of bacteriology and public health, has been made chairman of the new department and Dr. Frank Forry, professor of pathology, chairman of the new department of pathology. The pathology department has two divisions, one of general pathology with Dr. Forry as chairman and a division of clinical pathology with Dr. Clyde G. Culbertson as chairman, according to the *Bloomington Student*.

## KENTUCKY

**Personal**—Dr. Frank M. Rogers, formerly of Coleman, Ga., has been appointed health officer of Crittenden County with headquarters at Marion. Dr. Michael M. Hall, Campbellsville, was appointed coroner of Taylor County to succeed the late Dr. Benjamin T. Black. Dr. Elmer K. Umberger, formerly of Trinity, Texas, has been appointed health officer of McCreary County.

**Dr. Abell to Receive Notre Dame Medal**—The Lactare Medal, awarded annually by the University of Notre Dame, is to be awarded to Dr. Irvin Abell, Louisville, President-Elect of the American Medical Association. In the announcement Father John O'Hara, president of the university, said:

The merit of Dr. Abell in his profession has been signally recognized in his election to the presidency of the American Medical Association and his varied service to city, state and nation as surgeon, citizen, soldier and Christian gentleman has endeared him in the esteem of a numerous and extensive public benefited by his years of devotion to the complete welfare of his fellow men.

The Lactare Medal was originated by Notre Dame in 1883 and Dr. Abell is the fifty-sixth recipient.

**Society News**—Dr. Emmet F. Horine addressed the Louisville Medical-Chirurgical Society, March 11, on "Mercurial Diuretics."—A symposium on diseases of the gallbladder was presented before the Boyle County Medical Society, Danville, February 15 by Drs. John Rice Cowan, George M. McClure, Stuart P. Hemphill, Oscar L. May and S. B. Sharp, D.D.S., all of Danville.—At a quarterly meeting of the Southwestern Kentucky Medical Association in Benton February 8, Drs. George F. Cummins, Metropolis, Ill., and Earnest R. Goodloe, Paducah, spoke on "Clinical Findings in Thyroid Deficiency" and "Etiology—How, When and Why" respectively.—Dr. Arthur B. Barrett, Lexington, addressed the Bourbon County Medical Society, Paris, January 27 on "Endocrinology in Obstetrics and Gynecology" and George R. Smith, Lexington attorney, on "Medical Aspects of the Workmen's Compensation Act."

## MAINE

**Society News**—Dr. Maxwell Finland, Boston, discussed "The Treatment of Pneumonia" before the Cumberland County Medical Society February 25.—At a recent meeting of the Portland Medical Club Dr. Francis W. Hanlon spoke on "The Relation Between Acute Visceral Infections and the Alarm Reaction." Dr. Thomas Tetreau addressed the club recently

on "Milk as a Factor Influencing the Infant Mortality Rate in Portland."—The Kennebec County Medical Association was addressed in Waterville February 17 on "Recent Developments in the Diagnosis and Treatment of Diseases of the Stomach."—At a meeting of the Penobscot County Medical Association in Bangor recently Dr. Champ Lyons, Boston, spoke on "Modern Methods in the Treatment of Pyogenic Infections."

## MARYLAND

**Society News**—At a meeting of the Baltimore City Medical Society, March 4, a paper by Drs. John E. Howard and Samuel A. Vest Jr. was presented by Dr. Vest, the subject was "Clinical Experiments in the Use of Testosterone." Dr. Herbert Schoenrich discussed "Sulfanilamide in Clinical Gonorrhea."—Dr. Thomas Nelson Carey, Baltimore, addressed the Carroll County Medical Society in Westminster January 26 on "Use of Serum in Treatment of Pneumonia."—Dr. Joseph H. Barach, Pittsburgh, addressed the Allegany-Garrett County Medical Society at Cumberland, February 25, on "Science of Nutrition and the Treatment of Diabetes."

**The De Lamar Lectures**—The remaining lectures in the De Lamar series at the Johns Hopkins University School of Hygiene and Public Health, Baltimore, will be delivered by

Dr. Thomas Francis Jr., International Health Division of the Rockefeller Foundation, New York, April 12, "The Immunology of Epidemic Influenza."

Edmund V. Cowdry, Ph.D., professor of cytology, Washington University School of Medicine, St. Louis, April 19, "Cellular Changes in Leprosy."

Dr. Franz Weidenreich, honorable director, Cenozoic Research Laboratory, National Geological Survey of China, Peking, on "The Significance for the Problem of Human Evolution." The date of this lecture had not been decided.

Robert Matheson, Ph.D., professor of economic entomology, Cornell University Agricultural Experiment Station, gave a lecture in this series March 8 on "Biology of Anophelines with Special Reference to Those of North America."

## MICHIGAN

**New Professor of Pathology**—Dr. Edgar H. Norris, Minneapolis, teaching assistant in pathology, University of Minnesota Medical School, Minneapolis, has been appointed professor and head of the department of pathology at Wayne University College of Medicine, Detroit, according to the *Minneapolis Journal*. The appointment is effective next fall. Dr. Norris graduated at the University of Minnesota Medical School in 1919.

**Physicians Honored**—Dr. Heman B. Kiehl, Lapeer, was given a dinner by the Lapeer County Medical Society February 10 to observe his completion of more than fifty years in the practice of medicine. He was presented with a chair. Dr. Kiehl helped to organize the Ogema, Montmorency, Crawford, Oscoda, Roscommon and Otsego Medical Society, serving as vice president at the time of its establishment. He was formerly health officer of Rose City and is an alumnus of the College of Physicians and Surgeons, Keokuk, Iowa, class of 1887.—Dr. Robert B. Armstrong, Charlevoix, was recently chosen the first life member of the local Kiwanis Club, he was mayor of Charlevoix in 1907.—The Jackson Academy of Medicine and Dentistry gave a dinner in honor of Dr. Joseph C. Kugler in Jackson, January 27, to mark his retirement from active practice. Dr. Horace W. Porter, Jackson, was toastmaster.

## MINNESOTA

**Janitor Performs Illegal Operation**—Frank Kish, a janitor, pleaded guilty in Ramsey County March 1 to a charge of performing an abortion and was sentenced to a term of eighteen months at hard labor in a state penal institution. Kish admitted having performed about twenty-five abortions, charging from \$5 to \$30. He had only an eighth grade education and no medical training whatever, the state board of medical examiners reported.

**Society News**—The Minnesota Pathological Society was addressed in Minneapolis March 15 by Dr. Abe B. Baker on "Subdural Hematoma" and Drs. Arild E. Hansen and Irvine McQuarrie and Mildred R. Ziegler, Ph.D., on "Disturbances in the Osseous and Lipid Metabolism in a Child with Primary Carcinoma of the Liver."—The Minnesota Academy of Medicine was addressed in St. Paul March 9 by Drs. Frederic E. B. Foley on "Operative Division of a Unilateral Fused Kidney" and Hendrie Grant, on "Malignant Hypertension."—Dr. George R. Dunn has been elected president of the Minneapolis Surgical Society, succeeding Dr. Otto W. Yoerg.

## MISSOURI

**Annual Spring Clinic**—The St Joseph Clinical Society will hold its seventh annual spring clinic at the Hotel Robideaux, St Joseph, April 13-14. There will be no registration fee. The speakers will include

Dr. James O Donoghue, St Joseph, Advances in X-Ray and Radium Therapy  
Dr. Vincil Rogers Deakin, St Louis, Treatment of Acidosis in Renal Insufficiency  
Dr. Robert D Alexander, St Louis, Cancer of the Colon and Rectum  
Dr. Ernest Sachs, St Louis, Brain Tumor  
Dr. Ralph V Byrne, St Joseph, New Clinical and Laboratory Concepts of Hyperthyroidism  
Dr. Thomas L Howden, St Joseph, Hypertension of the Menopause  
Dr. Robert S Minton, St Joseph, Eye Injuries  
Dr. Thomas G Orr, Kansas City, Cancer of the Breast  
Dr. Rollin Russell Best, Omaha, Advances in the Treatment of Biliary Tract Disease  
Dr. Warren H Cole, Chicago, Intestinal Obstruction  
Dr. Horace M Korns, Iowa City, Diagnosis and Treatment of Peripheral Vascular Disease  
Dr. Henry H Turner, Oklahoma City, Okla, Diagnosis and Treatment of Endocrine Disorders

At the luncheon the first day Dr Sachs will show a "Travelogue to Guatemala." In the evening a joint dinner meeting will be held with the Buchanan County Medical Society with Drs Hugo Ehrenfest, St Louis, and Clifford G Grulee, Evanston, Ill, as the speakers on "Birth Injuries" and "Intracranial Hemorrhage of the Newborn" respectively. At a dinner the following evening Dr Cole will speak on "Pancreatitis."

## NEBRASKA

**Society News**—Dr Sanford R Gifford, Chicago, was the guest speaker before the Omaha-Douglas County Medical Society, Omaha, February 8, on "Recent Advances in Ophthalmology." Dr Joseph D McCarthy, Omaha, discussed "Questionable Cholecystitis—Cholecystectomy and Its Aftermath" and Dr Charles McMartin reported a case of vulvar verruca acuminata. Drs Edward H Hashinger and Ferdinand C Helwig, Kansas City, Mo, addressed the Lancaster County Medical Society, Lincoln, February 1, on "Various Phases of Obesity with Particular Emphasis on Endocrine Therapy" and "The Diagnostic and Therapeutic Importance of Endocrine Activity in Neoplastic Disease" respectively. Drs Warren Thompson and Joseph D McCarthy, Omaha, addressed the Madison Six County Medical Society, Norfolk, January 18, on heart disease.

## NEW YORK

**Society News**—Dr William Hadden Irish, New York, addressed the Westchester County Medical Society, White Plains, March 15, on "Common Disabilities of the Knee Joint."—Dr William F Rienhoff, Baltimore, addressed the Medical Society of the County of Albany March 23 on "Diagnosis and Treatment of Carcinoma of the Lung and Allied Conditions Such as Bronchiectasis and Pulmonary Abscess."

**Cruising X-Ray Laboratory for Silicosis Tests**—The New York State Department of Labor has fitted a traveling x-ray laboratory to be sent to industrial centers where dust hazards are known or suspected to exist, the *New York State Journal of Medicine* reports. The traveling laboratory is 17 feet 9 inches long and 7 feet 4 inches wide. The rear half contains a reception and examining room, the other half the lead lined x-ray room.

**Outbreak of Septic Sore Throat**—An outbreak of septic sore throat involving 300 cases with two deaths up to February 26 was reported to the state department of health recently from Norwood, a village in St Lawrence County. Of 180 patients seen during an investigation 87 per cent had used raw milk from a single dairy. A milker on the dairy farm became ill with sore throat January 28 and later two cows were found to have acute mastitis. The milk was pasteurized and no new cases were reported up to March 7, *Health News* stated.

## New York City

**Gifts to New York University**—The following are among the largest in a list of gifts to New York University for research in medicine:

Mrs George B deLong \$10,000 for the department of pediatrics  
The Commonwealth Fund \$8,750 for research in obstetrics and gynecology  
Lucius V Littauer \$4,000 for studies on pneumonia  
Phi Delta Epsilon fraternity \$2,200 to establish the John Wyckoff Lectureship Fund  
Rockefeller Foundation \$500 for research in cellular physiology  
Committee for the Study of Suicide Inc. \$3,250 for study of suicide by the department of psychiatry at Bellevue Hospital  
Friedman Foundation Inc. \$1,800 for the Child Neurology Research Fund  
International Cancer Research Foundation \$1,500 for research in cancer

**Personal**—Drs Charles McDowell, emeritus professor of physiology, and Orlando S Ritch, a trustee of New York Medical College and Flower Hospital, were entertained at a luncheon March 9 in honor of the sixtieth anniversary of their graduation from the college.—Dr Francis Peyton Rous of the Rockefeller Institute for Medical Research has been elected a corresponding member of the Academy of Sciences, Paris, in the division of the biologic sciences.

**Dr Jelliffe Honored**—Friends of Dr Smith Ely Jelliffe have arranged a celebration of his thirty-fifth anniversary as editor of the *Journal of Nervous and Mental Disease*, to be held at the New York Academy of Medicine April 22. A symposium on neuropsychiatry will be presented at an afternoon meeting with the following program:

Dr Earl D Bond, Philadelphia, Balance in Psychiatric Research  
Dr George Draper, New York, The Man Factor in Disease  
Dr Frederick Tilney, New York, New Interpretation of the Hippocampus  
Dr Oskar Diethelm, New York, Psychiatry and Neurology in the Last Fifty Years  
Dr Karl A Menninger, Topeka, Kan, Somatic Correlations with the Unconscious Repudiation of Femininity in Women

Dr Adolf Meyer, Baltimore, will open the program and Dr Jelliffe will preside. In the evening there will be a dinner at which the following speakers will pay tribute to Dr Jelliffe: Drs Abraham A Brill, Louis Casamajor, Henry Alsop Riley, all of New York, and Richard H Hutchings, Utica. Dr Foster Kennedy will be toastmaster.

## OHIO

**Northern Tri-State Meeting**—The annual meeting of the Northern Tri-State Medical Association will be held in Findlay April 12. Among the speakers will be:

Dr Warren H Cole, Chicago, Hyperthyroidism  
Dr Max Thorek, Chicago, Electrosurgical Obliteration of the Gallbladder  
Dr Irving S Cutler, Chicago, Therapeutics of Later Years of Life  
Dr Gilbert J Thomas, Minneapolis, Infections Other Than Tuberculosis of the Urinary Tract  
Dr James S Speed, Memphis, Tenn, Central Fractures of the Neck of the Femur  
Dr Max Cutler, Chicago, Indications and Limitations of Radiation in the Treatment of Cancer  
Dr Alan Brown, Toronto, Some Common Disturbances in Children Frequently Handled Incorrectly

**Medical Library Association**—Dr Carl H Lenhart was elected president of the Cleveland Medical Library Association at its annual meeting in January. Dr Lenhart has been directing librarians of the association for eighteen years. Dr Clyde L Cummer, chairman of the board of trustees, reported that the association now has assets amounting to about \$400,000 in addition to the Allen Memorial Library building adjoining Western Reserve University. It has 52,000 volumes and receives 434 medical journals. During the past year 10,000 visits to the library were recorded, only 3,000 were visits from members, the remainder being from students and the general public. A portrait of the late Dr Alfred A Jenkins, president of the library association at his death Nov. 19, 1937, was presented on behalf of his family.

## PENNSYLVANIA

**Hospital News**—Ground was broken March 8 for the new Montgomery Hospital, Norristown, the cost of which is estimated at \$525,000.—The Greene County Memorial Hospital was recently opened in Waynesburg. It has a capacity of seventy beds and cost \$125,000 of which \$70,000 was a loan from the federal government. \$30,000 was appropriated by the county and \$25,000 was raised by public subscription.

**Society News**—Dr Hobart A Reimann, Philadelphia, addressed the Lycoming County Medical Society, Williamsport, March 11, on "Recent Advances in the Treatment of Certain Infectious Diseases."—Dr George J Kristlin, Pittsburgh, addressed the McKean County Medical Society, Bradford, January 18, on pneumonia control.—An obstetric and pediatric institute was presented at a meeting of the Westmoreland County Medical Society at the Mountain View Hotel near Greensburg, March 22, under the auspices of the state medical society. The speakers, all of Pittsburgh, were Drs David Benjamin Martinez, William Paul Dodds, Charles J Barone, William W Briant Jr, Henry T Price and David H Boyd.

## Philadelphia

**Medical College News**—The Woman's Medical College of Pennsylvania celebrated its eighty-eighth anniversary, March 11. Dr Martha L Bailey, Dillsburg, presided and the speakers were Drs Lida Stewart Cogill, Philadelphia, Kate Campbell Hurd Mead, Haddam, Conn, and Henry D Jump.



**Society News**—Speakers at a meeting of the Physiological Society of Philadelphia, February 21, included Drs. Dile R. Coman, on "The Effect of Sulfanilamide on Chemotropism of Leukocytes," and Paul E. Adolph and John S. Lockwood, "The Use of Sulfanilamide in Experimental Hemolytic Streptococcal Meningitis"—Dr. Ward J. MacNeal, New York, addressed the Eastern Pennsylvania Chapter of the Society of American Bacteriologists, February 22, on "Bacteriological Service in Septic Conditions"—A program of ten minute papers on cancer was presented at a meeting of the Philadelphia County Medical Society, March 9, by the following physicians: Drs. Ralph S. Bromer, Bryn Mawr, Willard S. Hastings, Sigmund S. Greenbaum, George M. Dorrance, Howard H. Bradshaw, William Bates, William H. MacKinney, Dorothy C. Blechschmidt and William Wayne Babcock. Dr. Maurice E. Binet Vichy, France, addressed a special meeting of the society, February 25, on "Hepatic Insufficiency."

#### Pittsburgh

**Pediatric Survey**—The Allegheny County Medical Society is sponsoring a pediatric survey for graduate physicians with no limit on the number permitted to register, the first of its type offered by the society in its twelve years of presenting graduate courses. Sessions were held at the Children's Hospital and Magee Hospital March 14 and 21, Allegheny General Hospital March 28, succeeding ones will be at the Pittsburgh Home for Babies, Watson Home for Crippled Children, Tuberculosis League, Municipal Hospital for Contagious Diseases and the Children's Hospital. Dr. Theodore O. Elterich is general chairman for the course.

**Society News**—Dr. Max M. Peet, Ann Arbor, Mich., delivered the Stewart Memorial Lecture of the Pittsburgh Academy of Medicine, March 22, on "Treatment of Hypertension by the Subdiaphragmatic Resection of the Splanchnic Nerves"—Guest speakers at a meeting of the Allegheny County Medical Society, March 15, were Dr. Benjamin I. Golden, Elkins, W. Va., on "Present Day Status of the Inguinal Hernia, with Discussion of Its Recurrence" and Rabbi Solomon B. Freehof, Pittsburgh, on "The Citadel of American Medicine"—At a meeting of the Pittsburgh Surgical Society March 29 the speakers were Drs. Daniel P. Greenlee, on "Adenoma of Islets of Langerhans with Hyperinsulinism," Otto C. Gaub, "Errors in Development of the Intestinal Tube Below the Stomach from the Surgical Standpoint" and Lyndon H. Landon, "The Surgical Problem of Gastric Ulcer."

#### TEXAS

**Society News**—Dr. Paul C. Williams, Dallas, addressed the Grayson County Medical Society, Sherman, recently on "Lesions of the Lumbosacral Spine"—Drs. Nellins C. Smith, Hillsboro, and Otto G. Zacharias, Whitney, addressed the Hill County Medical Society, Hillsboro, recently on "Serum Treatment for Lobar Pneumonia" and "Sulfanilamide Therapy," respectively—Drs. Louie E. Allday and Cecil O. Patterson, Dallas, addressed the Titus County Medical Society, Mount Pleasant, February 8, on "Therapy of Pneumonia with Especial Reference to the Various Serums Used" and "The Medical and Dietetic Management in Acute Cholecystitis," respectively—Drs. Simeon H. Hulsey and William L. Howell, Fort Worth, addressed the Brown-Mills-San Sabá Counties Medical Society, Brownwood, January 10, on "Bronchiectasis" and "Diagnosis of Heart Conditions" respectively—Drs. Harold L. D. Kirlham and Edwin Ghent Graves, Houston, addressed the Jefferson County Medical Society, Port Arthur, January 10, on "Facial Injuries" and "Recent Advances in Internal Medicine" respectively—Dr. Byron A. Jenkins, Lubbock, addressed the Lubbock-Crosby Counties Medical Society, Lubbock, January 4, on "The Infant's Diet During the First Year"—A symposium on sulfanilamide therapy was presented at a meeting of the Tarrant County Medical Society, Fort Worth, January 4, by Drs. Horace S. Renshaw, Douglas G. Mitchell, Crug W. Munter, Thomas H. Thomason and Sidney E. Stout, all of Fort Worth.

#### PHILIPPINE ISLANDS

**Personal**—Dr. Eusebio D. Aguilar, Manila, has been appointed director of the bureau of public welfare for the islands—Dr. Gregorio Lantín, Manila, has been made head of the medicolegal section of the department of justice.

**University News**—The board of regents of the College of Medicine, University of the Philippines recently abolished the medicolegal department of the school. Sixto de los Angeles, L. M., head of the department since its establishment, has resigned.

#### GENERAL

**Scholarship in Psychiatry**—The Institute of International Education announces that a Woolley scholarship in Paris is offered to a student in psychiatry for the year beginning October 1. The scholarship consists of \$600 and a room in the United States House of the Cité Universitaire in Paris, under whose auspices the offer is made. To qualify, a candidate must be an American citizen, hold a medical degree or be in the last year of study for it, be under 30 and unmarried and have a good working knowledge of the French language. For application blanks apply to the Institute of International Education, 2 West Forty-Fifth Street, New York.

**Academy of Arts and Sciences to Award Septennial Prize**—Announcement is made of the "Francis Amory Septennial Prize" to be awarded by the American Academy of Arts and Sciences for "outstanding work with reference to the alleviation or cure of diseases affecting the human genital organs." The fund providing the award was a gift of the late Francis Amory, Beverly, Mass. It will amount to more than \$10,000 and may be given in one or more awards, the first in 1940 if work of a quality to warrant it is presented. There will be no formal nominations, and no formal essays or treatises will be required. Suggestions should be made to the Amory Fund Committee, 28 Newbury Street, Boston.

**New President of Parke, Davis & Company**—Dr. Alexander W. Lescohier, Grosse Pointe, Mich., was elected president of Parke, Davis & Company at a meeting of the board of directors in Detroit March 1, to succeed Oscar W. Smith, who died February 7. Dr. Lescohier has been general manager and a director since 1929. He joined the staff of Parke, Davis & Company in 1909, the year of his graduation from Detroit College of Medicine. In 1918 he was named assistant director of the research and biologic laboratories, where he was in charge of the production of serums, vaccines, antitoxins and other biologic products, in 1925 he was made director of the department of experimental medicine and in 1928 assistant to the president.

**The Annual Golf Tournament in San Francisco**—The twenty-fourth annual tournament of the American Medical Golfing Association will be held at the San Francisco Golf and Country Club Monday June 13. The association has planned a tour for its members, beginning with an ocean trip from New York to New Orleans and including six games at cities on the way. The group will sail from New York June 1 and play its first game in New Orleans June 7. Games will be played at Houston, Galveston, San Antonio, Los Angeles and Del Monte, Calif. The return trip will be through Portland, Seattle, Vancouver, Lake Louise and Banff, with two more games and a trip up Puget Sound. The president of the association is Dr. Walt P. Conaway, 1723 Pacific Avenue, Atlantic City, N. J., and the executive secretary is Bill Burns, 2020 Olds Tower Lansing, Mich.

**Changes in Status of Licensure**—The North Dakota State Board of Medical Examiners recently reported the following action:

Dr. John Morgan Phillips, Bisbee, license suspended following charges of having performed an illegal operation.

Dr. Joseph Allaire Olga, license suspended after his pleading guilty to use of narcotics.

The Commission on Licensure of the Medical Society of the District of Columbia announced the following:

Dr. James D. Eggleston, Takoma Park, Md., license revoked January 21, having been convicted of performing an illegal operation.

The Virginia State Board of Medical Examiners reports the following recent action:

Dr. Robert Clay Hogue, Richmond, license revoked following his conviction of violation of the Harrison Narcotic Act.

The Illinois State Board of Registration and Education announces the following:

Dr. Benjamin McChapman, Chicago, license restored Dec. 21, 1937.

**Dedication of Indian Hospital**—Dr. William W. Peter, medical director of the Navajo-Hopi Indian Reservations in northeast Arizona, sends a special invitation to physicians attending the annual session of the American Medical Association in San Francisco June 13-17 to attend the dedication of a new base hospital for the reservation at Fort Defiance June 20. Three days of clinics will follow. Those who contemplate visiting the reservation for this occasion should write to Dr. Peter at Window Rock, Ariz., giving expected date of arrival, length of stay and number in party so that reservations can be made either at Gallup, N. M. (the nearest town, 31 miles from Fort Defiance) or in the dormitories at Fort Defiance. Tours over the 25,000 square mile reservation will be arranged on request. Physicians and public health workers in states bordering Arizona are also invited.



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 5, 1938

#### Yellow Blackboards

The National Institute of Industrial Psychology has turned aside from its investigations of the working conditions of factories and offices to those of schools and directed its attention to the strain of copying from the blackboard. It has now published an investigation entitled "Improving the Blackboard," by Dr W D Seymour, which may render that time-honored article obsolete. The strain felt by children copying from the blackboard may be partly due to the repeated movements of the head and eyes and to changes of accommodation, but the question arose whether it was also due to copying from a black board on to white paper. The former has a reflection factor of from 10 to 15 per cent while the latter has one of from 85 to 90 per cent. The object of the investigation was to find whether a board with a much higher reflection factor than a black board would enable children to copy from it more quickly and with less strain. As a white board would cause glare, a light yellow board was chosen for the experiments, with blue as the color for the chalk. An instrument was devised to record on a moving tape the time taken by adults to read successively exposed short syllables presented first in white letters on a black board and then in dark blue letters on a yellow board. The words on the yellow board were read more quickly, the average difference being 15.4 per cent. The experiment was then made in the class room of getting children to copy the usual white letters on a black board and comparing the result with copying from a yellow board. The results showed an advantage in time of 10 per cent for the latter. It is suggested that this saving in time represents a material reduction in strain. A further investigation is being made of the most suitable material from which boards of the color found best from the visual standpoint may be constructed.

#### Medicine and Eugenics

In his Galton lecture to the Eugenics Society, Prof J A Ryle made a plea for greater attention to eugenics. Planning for national health and efficiency should be in the hands of the three great applied sciences—medicine, eugenics and sociology. Medicine, he regretted to say, was so taken up with urgent practical affairs that it had scarcely found time to consider what its true objectives are. Between the three there was at present no true cooperation. It was rare to meet among physicians one with even the rudiments of genetics or more than a superficial interest in the prospect of race betterment by eugenic education or legislation. The Eugenics Society had 650 members, only one fifth of whom were physicians. The membership should be much higher and the proportion of physicians should be increased if any large and effective policy was to come forth. A program to solicit the fuller cooperation of medicine would be more effective than any propaganda to awaken interest in lay audiences. Professor Ryle made the following practical recommendations:

1 A national council should be formed embodying the triple alliance between medicine, eugenics and sociology, with representatives in each instance of the academic and applied sciences and appropriate contacts with the ministries and research departments of health, agriculture and labor. This council should be advisory for education, research in human genetics and social reorganization. It should regularly transmit to the legislative councils of the country the information accumulated, with suggestions for reform based thereon. In the preventive field such a council might stand in the same relation to the government

as the Medical Research Council now stands for the problems of medical research and its application to practice.

2 As part of a general reform in medical education, the curriculum should be modified to lay more stress on all preventive aspects. The preservation of health by nutritional and other social reforms and by applications of human and animal genetic studies to eugenic education and legislation should receive fuller emphasis, both in the preclinical and in the clinical periods. In the clinical period, teachers should recognize a special duty in connection with the prophylactic aspects of medicine.

3 With the help of existing organizations, eugenic and sociologic, an endeavor should be made to interest the physicians of the country, through their medical and scientific societies, in the preventive and educational role which they might themselves fulfil by instruction in domestic eugenics, both positive and negative. The preservation of health as a primary function with the treatment of disease as a secondary function, should become the new ideal.

4 A limited number of research chairs or readerships in human genetics should be established preferably in universities where the medical and biologic services already function side by side.

#### An Australian Premarriage Clinic

A premarriage clinic has been opened in Sydney, where health tests are available for couples about to marry. The clinic is subsidized by the state government of New South Wales and is sponsored by the Racial Hygiene Association. It arranges an exhaustive overhaul by any of twelve specialists for a nominal fee. It issues certificates that (1) the parties contemplating marriage are fit to marry and raise a family, (2) the marriage should be delayed for from three to six months or (3) the marriage should be permitted without parentage or should be discouraged. The clinic receives letters from young people on marriage problems at the rate of 100 a month.

#### Sir Thomas Stanton

Sir Thomas Stanton, chief medical adviser to the secretary of state for the colonies and co-discoverer of the cause of beriberi and a pioneer worker on other tropical diseases has died in London. Born in Canada in 1875, he graduated M.D. from Toronto and continued his medical studies in London at University College Hospital and the London Hospital. At the Hospital for Tropical Diseases he became house surgeon to Manson, who appointed him demonstrator. In 1907 he went to the Malay States to assist Henry Fraser, director of medical research at Kuala Lumpur in an attempt to discover the cause of beriberi. They experimented with two groups of coolies who were making a road through virgin jungle. One group was fed on polished rice, the other on parboiled rice. They were thus able to prove that beriberi was due to feeding on rice from which the outer layers had been removed by polishing. They found that the subpericarpal layers contained certain 'alcohol-soluble substances minute in amount but of high physiological value in nutrition.' Thus the important new conception of 'a deficiency disease' entered medicine. It was not until some years later that Funk introduced the name vitamin for such substances. Stanton and Fraser wrote numerous valuable papers on beriberi which were republished in a volume entitled "Collected Papers on Beriberi." He was able to write in the preface, "Beriberi, which was formerly a scourge in the Orient, is now well on the way to extinction." Stanton was also an excellent entomologist and did work on the identification of mosquito larvae almost as important as that on beriberi. He also discovered that an obscure and fatal disease which appeared in 1917 among the laborers on rubber estates was due to an organism like that of glanders. He named the disease 'meliodosis.'

## PARIS

*(From Our Regular Correspondent)*

March 5, 1938

## Cevitamic Acid in the Treatment of Addison's Disease

Few reports have appeared on the use of cevitamic acid in Addison's disease, although the results of the research of Szent-Gyorgyi justify such a treatment. At the January 21 meeting of the Societe medicale des hopitaux a case was reported by Laederich and his associates in which gratifying results followed the use of cevitamic acid in Addison's disease. The patient was a male nurse, aged 31, whose chief complaints on admission to the hospital, Sept 9, 1937, were severe asthenia and gastrointestinal disturbances of six months' duration. Examination revealed the typical skin pigmentation found in Addison's disease, especially marked on parts of the body exposed to the air as well as on the buccal mucosa. The asthenia and emaciation were also apparent. The epidermal reaction to tuberculin was markedly positive. The Wassermann reaction was negative. Until October 11 a daily hypodermic injection was given of adrenal cortex extract but the patient's condition showed no improvement. Cevitamic acid was then given in doses of 1 Gm daily in a single dose. Within ninety-six hours after this treatment was begun, i. e., as soon as the acid appeared in the urine, a striking improvement was noted in the form of cessation of emesis and diarrhea with return of appetite. The patient was able to get out of bed October 20 and the skin and mouth pigmentation began to lessen until the middle of November, since which time it has remained stationary.

Harris, Ray and Ward have called attention to the fact that delay in the appearance of cevitamic acid in the urine of patients suffering from vitamin C subnutrition is an excellent way of evaluating the degree of avitaminosis. This method was applied in the case reported by Laederich and his associates. In spite of the administration of 36 Gm of cevitamic acid during the first four days, none of the acid was found in the urine. Similar observations in five cases of Addison's disease have been reported by others. The rapid disappearance of the asthenia, digestive disorders and genital disturbances as in the present case has not been reported previously. The authors consider their case as symptomatically improved following the use of cevitamic acid in large doses.

## Diagnostic Centers for Low-Income Classes

To avoid the conversion of the medical profession into government officials in the state's effort to socialize medicine, the secretary of the organization which looks after public relations for the profession here proposed about a year ago to establish diagnostic centers all over France. These centers were to be organized by what corresponds to the county medical societies in the United States. The staffs were to be composed of the specialists and general practitioners of each county. The chief objective of each center was to be preventive medicine, in the form of examination of patients referred by local practitioners whose income did not permit payment of the laboratory and specialist fees incidental to the diagnosis of conditions difficult to recognize with the facilities usually at the disposal of the general practitioner. This idea of diagnostic centers was the subject of much discussion at the annual meeting in December 1937 of the Confederation des syndicats medicaux, delegates from all of the ninety departments of France taking part. Only one county society had tried such a diagnostic center plan. The secretary of this society reported that quarters had been placed at their disposal by the county hospital. Patients in the low-income class are sent by their attending physicians with a slip indicating that certain examinations ought to be made, some

of which might require the services of specialists. Following a complete study of a given case, the patient is sent back to his physician with the results of the various examinations. No effort is made to treat those in the low-income class, this is carried out only in the case of indigents, for whose care the county authorities pay. Those in the low-income class are charged a fee merely sufficient to pay for laboratory charges.

## The Antituberculosis Campaign

Prof. Fernand Bezançon read a paper at the February 22 meeting of the Academie de medecine de Paris in which he showed how differently pulmonary tuberculosis is regarded at present from what it was twenty years ago. At that period it was believed that the appearance of the disease in adult life was simply a recrudescence of a primary infection in infancy, and hence the objectives of the fight against tuberculosis were to isolate children from possible contagion and to attempt to eliminate any cause which could favor its lighting up in adults. The Pirquet test appeared to show that the number of positive reactions increased with age until they attained 97 per cent in adults. Recent contributions to the subject by American and northern European phthisiologists, confirmed in France, have shown that the statistics of an almost universal positive reaction in adults were based on dispensary observations made among the poorer classes and that in reality if one applies the tuberculin test to those residing but a short time in the larger cities as well as to those in the middle and upper classes of society it would be found that from 30 to 40 per cent of young adults showed a negative reaction. Hence the question arises as to whether a large number of the tuberculous manifestations seen in adolescents and young adults ought not to be considered late primary infections rather than a lighting up of a primary infection in nurslings and young children. It follows that exposure to infection in adults plays a far more important part than any other cause, hence the lesson to be drawn from the observations of Scandinavian phthisiologists is that under no conditions should persons who have a negative tuberculin reaction be permitted to do any work in which they are exposed to contact with tuberculous persons. This applies particularly to medical students and pupil nurses.

Another question is whether it is necessary to separate children showing a positive tuberculin reaction from contact with tuberculous parents. The recent observations of Professor Bezançon and his co-workers (Negative Tuberculin Skin Reactions in Children, *THE JOURNAL*, Oct 16, 1937, p 1289) have shown that children exposed to such infection by parents have either curable forms of the disease or only a positive skin reaction or present no evidences of infection.

One of the most important tasks for those interested in the subject, in the near future, is to follow individuals showing either positive or negative reactions when exposed to tuberculous infection.

Early diagnosis not only with the aid of the skin reactions but also by means of radiography and thorough clinical examination is the immediate goal of the fight against tuberculosis. The dispensary must remain the keystone of the arch in this fight, aided by the work of visiting nurses who will supervise home hygiene. The sanatorium ought to become more and more an active treatment center and not to be filled up with patients who really do not need sanatorium care, such as those recovering from a hemoptysis without bacilli in the expectoration, and only discrete radiologic evidence of disease. Also to be excluded are those convalescing from pleurisy, also old fibrous tuberculosis patients and those with chronic bronchitis and emphysema. For the first named preventorium or convalescent homes should be created. The more chronic cases should be cared for in special hospitals for this purpose. The sanatorium should be reserved for cases in active evolution and these patients

should be sent home as soon as the acute stage has passed. Tuberculosis causes more than 60,000 deaths every year in France, and between 500,000 and 600,000 persons here have the disease.

### BERLIN

(From Our Regular Correspondent)

Feb 14, 1938

#### Investigation of Blood Donors

Dr K A Seggel of the Leipzig Medical Society investigated the blood donors of his city. The total number of recorded requests for blood donors was 1,865. Thorough preliminary and subsequent observation of the donor is an urgent necessity, it should include complete serologic examination. In all, 1,042 such examinations were carried out. The total amount of blood donated was 672 liters. The number of donors varied, 195 blood donors' certificates being issued, thirty-two donors had undergone more than twenty transfusions and eight more than thirty. The maximum per donor was thirty-three transfusions. There were forty-five donors who had provided more than 6 liters of blood, ten of whom had given in excess of 10 liters, the maximum was 12 liters. Good medical care of the donor is certainly desirable, since frequently a substitute is difficult to find. There is a steadily increasing demand for blood donors. Formerly only forty-seven transfusions were performed in a quarter, now the number is around 240. The national ministry of the interior regulates the compensation of donors.

Disturbances due to incorrect blood typing of recipients are avoidable, two cases were reported in each of which 400 cc of atypical "incompatible" blood was transfused without untoward clinical consequences. On the contrary, in five cases transfusions of smaller amounts (from 10 to 375 cc) of atypical "incompatible" blood were followed by disturbances: hemolysis, nephritis, and so on. The so-called Oehlerker biologic preliminary test is considered distinctly unreliable. In one case mild clinical symptoms followed transfusion of O blood to an A recipient whose blood had incorrectly been typed as O. Thus far it has been impossible to avoid occasional disturbances even if the blood of donor and recipient is compatible on the basis of the classic fourfold grouping, especially noteworthy incidents in point were four cases of icterus (three of the patients were of group A, one of group AB) and three cases of hemoglobinuria all in group A patients. The majority of recipients in the mentioned cases had tolerated without any incident other transfusions of similar type blood both previously and subsequently. One is surprised to find that these anomalous cases always concerned a recipient of the A type, possibly these phenomena indicate that persons of the A<sub>1</sub> type may present an α and persons of A type an α<sub>1</sub>. Such incidents are, however, extremely rare (seven instances, in all, 1,865 transfusions). Prophylaxis by exact evaluation of the peculiarities of the subgroups is virtually impossible in clinical practice.

#### Improved Cardiac Diagnosis

Prof A Weber, Naunheim cardiologist, recently lectured to the Frankfurt Medical Society on improved cardiac diagnosis. He called particular attention to four diagnostic technics.

1 Evaluation of arterial sounds by auscultatory measurement of blood pressure. By the quality of these sounds the magnitude of the cardiac output may be gaged. Arterial sounds are always more distinct under circumstances in which increased cardiac output would be expected after physical exercise, in states of psychic excitation, in aortic insufficiency, after an extrasystole with prolonged compensatory pause and in feverish patients whose hearts are healthy. Subdued arterial sounds are heard under other conditions, e. g., in aortal and mitral stenoses, in collapse and in coronary thrombosis. Intermittent loud and soft arterial sounds accompany the pulsus alternans. A diminution

of the arterial sounds in the febrile stage of infectious disease or in narcosis is an earlier portent of circulatory failure than a fall in blood pressure.

2 Evaluation of the venous pulse. Systemic circulatory stasis leads to premature termination of the systole, a symptom usually present in mitral stenosis. Enlargement of the presystolic waves and simultaneously appearing small systolic waves are also characteristic for mitral stenosis. The manifestation of an "insufficiency wave" which rises with the beginning of the first sound, and which therefore precedes the systolic venous wave, indicates tricuspid insufficiency.

3 Evaluation of the heart sounds. A graphic record of the heart sound curve obtained with proper apparatus represents an objective check on the data elicited by auscultation. Moreover, the heart sound curve provides a whole group of data imperceptible to the most expert auscultatory technics. An example in point would be the soft abnormal sound phenomena that sometimes accompany intense audible sounds. From auscultation one obtains a decidedly incomplete impression of the duration of a sound. In coronary sclerosis, hypertension and so on, highly significant signs such as presystolic murmurs are imperceptible by auscultation. Yet this type of bruit is actually common and is an objective indication of left ventricular failure. Supernumerary sounds, often detected with difficulty by auscultation, nearly always become plainly demonstrable in a correct recording of the heart sounds.

4 Electrocardiography, the technic by which various arrhythmias are evaluated and the diagnostic aid *par excellence* in coronary disease and myocardial lesions both ephemeral and chronic.

#### The Heritability of Neuropathic Muscular Atrophy

Formerly the term neural muscular atrophy was applied to those forms of progressive muscular atrophy in which the peripheral nerves as well as the musculature undergo degeneration while the cells of the anterior horn of the spinal cord present only insignificant changes, or no changes whatever. But as H. Boeters stated in a lecture before the German Society of Genetics, the degeneration of the peripheral nervous system is not a uniformly present condition, whereas degenerative changes in the cells of the anterior horn and atrophy of the anterior root are always demonstrable. The clinical picture varies in correspondence with the progress of the degenerative processes objectively observed. The disease usually begins in the first or second decade of life and is characterized by a slowly progressive muscle atrophy which attacks various parts of the extremities, especially the calf of the leg. Areflexia, vasomotor disturbances and changes in response to electrical stimuli are also present. In addition to the peripheral changes, some cases are marked by degenerative changes in the gray columns (these cases develop into Friedreich's ataxia). In still other cases, changes in the lateral pyramidal columns are observed. In view of these variations "neural muscular atrophy," a designation that implies a limitation of the process to the peripheral venous system, can no longer be considered correct.

The hereditary transmission of the disorder has not been well understood. Boeters therefore recently undertook pertinent investigation of a total of 1,125 persons in thirty five different families. In addition to the original forty two cases of neuropathic muscular atrophy, which led to the selection of the families studied, Boeters discovered 121 other cases among relatives. In a large majority of cases the disease had been directly transmitted from parents to children over several generations. In a small number of instances the disorder was present in siblings but the parents were healthy. Close investigation of these allegedly healthy parents however, often elicited histories of relatively mild anomalies: talipes cavus, slight atrophy of the musculature of the calf accompanied by

arcflexia, complaints of weakness and apparent crippling of a leg on exposure to cold. The foregoing observations indicate that the disease most often is not strongly manifested and the predisposition may accordingly be wholly checked. Still there may persist an (incomplete) dominant transmission coexistent with a relatively slight penetration and active expression of the trait. This observation is corroborated by the morbidity statistics. In the material studied by Boeters the ratio of males affected by neuropathic muscular atrophy to females similarly affected was 2:1 (a ratio in agreement with other data). A sound interpretation of this variation has yet to be made. Besides, it is still problematic whether the female sex exerts an inhibitory influence on the manifestation or whether men as a consequence of stronger demands made on them, namely, more marked environmental influence, are more frequently the victims. In Boeters' material the onset of the disorder lay between the sixth and the twentieth year of life. Great variability was noted with respect to the course and severity of the disease. In fact, certain families presented pluralities of cases so similar, even to minute characteristics, that a sort of familial type of the disease was considered probable. The social value of the patients was extremely diverse. Families in which the disorder was manifested preponderantly or exclusively in a milder form were rare. If the disease began early and progressed the patient did not procreate, on the contrary, a late inception and mild course of the disease did not prevent marriage and procreation. The general course of the atrophy is severe and in Boeters' opinion justifies sterilization of the sufferer, provision for which is made in the German law.

## NETHERLANDS

(From Our Regular Correspondent)

Jan 25, 1938

### Plumbism Among Cigar Makers

Following the official report of forty-one cases listed as lead poisoning among the employees of fourteen cigar factories in the southern part of the country, an inquiry was inaugurated by the medical service of the factory inspection bureau. More than half of these cases and other cases subsequently reported were characterized by gingival lines. There were also a number of suspected cases. The inquiry was principally concerned with the underlying cause of these accidents. Three possible sources of contamination were considered: (1) the sheets of zinc on which the cigars are cut (cf. Pel's case, *Zentralbl f inn Med* 18:545, 1897), (2) the factory drinking water and (3) the drinking water in the homes of workers affected. A combination of these sources was thought to underlie some cases. The respective importance of the mentioned factors was regarded as unequal, the water, which in many instances was pumped from wells, was considered of greater significance than the zinc sheets. The health authorities have advised the various community governments and the public at large that for the time being there ought to be a revival of the old well bucket or at least a rejection of the first water to issue from the pump. This first flow of water, so commonly used in preparation of the morning coffee, probably will have stood all night in the leaden pipe.

### Care of the Babies of Unmarried Mothers

Dr. Knapper investigated the type of care received at present by the babies of unmarried mothers in the Netherlands. One organization, the Federation of Maternity Homes for the Unmarried Mother, is exclusively devoted to this problem. There are forty-seven such institutions under public control and many others under private auspices. Knapper concluded from his observations that the problem is far from being satisfactorily solved. The author places special emphasis on the following conditions which call for amelioration: buildings often

antiquated, crowded and poorly ventilated, financial resources insufficient to permit the mothers to suckle their babies during the first three months, poorly trained nursing personnel, unhygienic conditions that inevitably breed epidemics. Dr. Knapper suggests that proper care of the unmarried mother ought to be assured by law.

### Tuberculosis Mortality in the Netherland East Indies

Whereas, according to official statistics of the Netherland Indies, the mortality from paludism was only 5 per cent, that of typhoid 4 per cent, that of dysentery 3.5 per cent and that of cancer 3 per cent, the death rate from tuberculosis was 13.5 per cent. The last named disease thus claims more victims than all the other mentioned maladies together. It is important therefore to determine which elements of the population are chiefly affected by tuberculosis.

Data from the Tuberculosis Center at Surabaya and the sanatorium at Batoo indicate an equal morbidity from the disease in all elements of the population. At the Surabaya center 1,534 patients were examined in the year 1916, of these, 75 per cent were native, 15 per cent Chinese and 10 per cent European. Of a similar clinical material at the Batoo sanatorium 47 per cent were native, 34 per cent Chinese and 19 per cent European. If one considers that the average native is loath to visit a center and *a fortiori* to be hospitalized, it follows that the morbidity from tuberculosis among the indigenous population must be extremely high.

### Queen Wilhelmina Institute of Leprosy Research

The Queen Wilhelmina Institute, although it treats leprosy patients in its hospital wards and dispensary, is primarily a research institution. The plant is divided into two sections: in the first are housed the laboratories, the experimental animals, the services of photomicrography and photomacrography, the library and so on; the second section contains the hospital wards (which are carefully arranged in accordance with the studies to be made and treatment to be administered) and the isolation units. The institute is directed by Dr. Lampe. Associated with him is Dr. Lobel, bacteriologist and veterinarian. Here, for the first time in the history of leprosy research, veterinary medicine forms an integral part of the medical-scientific approach.

At the first Netherland Indies Congress on Leprosy, many papers were read and discussed. The committee stressed the importance of the problem in question and announced that similar congresses would be held at regular intervals in the future.

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## Marriages

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ELBERT ALEXANDER MACMILLAN, Winston-Salem, N. C. to Miss Nora Irene Grantz of Clymer, Pa., in Philadelphia, Dec. 6, 1937.

J. PHELPS HAND JR., Washington, D. C., to Miss Lida Lee Gregg of Mancelier, Ga., in Baltimore, Dec. 29, 1937.

DAVID WALLACE MACKENZIE JR., New York to Miss Kathleen Byers of Fort William, Ont., Canada, in February.

CHARLES G. HILL, Philadelphia to Miss Caroline Catherine Stump of Irwin, Pa., Dec. 24, 1937.

JOSEPH J. MILLER, Pittston, Pa., to Miss Helen Corlyn Ross of Wilkes-Barre, Dec. 16, 1937.

ROLAND P. WILDER to Miss Dorothy E. Reeves, both of Malden, Mass., Oct. 27, 1937.

PAUL L. WOLPERT, Onawa, Iowa, to Miss Katherine Block of Sioux City, February 10.

JOSEPH F. ROTH to Miss Belva Gibbons, both of Wilkes-Barre, Pa., Dec. 13, 1937.

GEORGE D. OLIVER, Queenscliff, B. C., to Miss Louise Clunness, Dec. 2, 1937.

## Deaths

**Michael Anthony Burns** @ Philadelphia, Jefferson Medical College of Philadelphia, 1907, professor of neurology since 1934 at his alma mater, and served successively as demonstrator, lecturer, associate, assistant professor and associate professor, visiting neurologist to the Philadelphia General Hospital, neuropsychiatrist to St Mary's Hospital, consulting physician to the Institute for Mental Hygiene of the Pennsylvania Hospital, consultant neurologist to St Joseph's Hospital and attending neurologist to Jefferson Hospital, served during the World War, aged 53, died, March 7, of heart disease

**Thomas Herbert Patton**, Tuscaloosa, Ala., Tulane University of Louisiana Medical Department, New Orleans, 1912, member of the Medical Association of the State of Alabama, fellow of the American College of Surgeons, aged 53, on the staffs of the Veterans Administration Facility and the Druid City Hospital, where he died, January 19, as the result of injuries received in a fall from a window

**Sherman McKenney**, Fremont, Ohio, Detroit College of Medicine, 1892, served during the World War, formerly county coroner and county health officer and member of the school board, on the staffs of the Community Hospital and the Memorial Hospital, aged 70, died, January 16, of coronary occlusion, while aboard the *S S Mariposa*, en route to San Pedro, Calif., on a cruise to Australia

**George H. Penrose**, Col. Q. M. C., U. S. Army, Washington, D. C., University of Buffalo School of Medicine, 1886, veteran of the Spanish-American War, served in the quartermaster corps of the army in various capacities, in 1920 was made a colonel, and retired in 1922 at his own request after twenty-four years service, aged 76, died, January 6, in the Walter Reed General Hospital

**Luther Hess Hamilton** @ Portland, Ore., Jefferson Medical College of Philadelphia, 1901, member of the North Pacific Surgical Association, fellow of the American College of Surgeons, at one time assistant clinical professor of surgery at the University of Oregon Medical School, on the staff of the Good Samaritan Hospital, aged 64, died, January 16, of cerebral hemorrhage

**James A. Pickett**, El Paso, Texas, Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906, member of the State Medical Association of Texas, past president of the El Paso County Medical Society, on the staffs of the City-County Hospital and the Hotel Dieu, Sisters Hospital, aged 55, died, January 27, of peritonitis following an operation

**Hermann Feit** @ New York, Rheinische Friedrich Wilhelms-Universität Medizinische Fakultät, Bonn, Prussia, 1919, dermatologist to the Vanderbilt Clinic, Columbia University, Englewood (N. J.) Hospital, Greenville Hospital, Jersey City and the New York Skin and Cancer Hospital, aged 47, died, January 18, of a malignant growth

**William August Engsborg**, Lakemills, Wis., Rush Medical College, Chicago, 1891, member of the State Medical Society of Wisconsin, at one time mayor of Lakemills, bank president, aged 70, died, January 18 in the Madison (Wis.) General Hospital, of pulmonary embolism and hypertrophy of the prostate

**John Walker Hauxhurst**, Bay City, Mich., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1876, member of the Michigan State Medical Society, past president of the Bay County Medical Society, on the staff of the Mercy Hospital, aged 89, died, January 22, of cerebral hemorrhage

**Bradley A. Fowler**, Brownwood, Texas, Vanderbilt University School of Medicine, Nashville, Tenn., 1888, member of the State Medical Association of Texas, formerly on the staffs of the Medical Arts Hospital and the Stump General Hospital, aged 72, died, January 29, of coronary thrombosis

**Russell Park Glenn**, Abilene, Texas, Atlanta College of Physicians and Surgeons, 1905, fellow of the American College of Surgeons, on the staff of the West Texas Baptist Sanitarium, member of the State Medical Association of Texas, aged 64, died, January 2, of coronary occlusion

**Marie Louise Chard** @ New York, Woman's Medical College of the New York Infirmary for Women and Children, New York, 1895, fellow of the American College of Surgeons, on the staff of the New York Infirmary for Women and Children, aged 70, died, January 20, of myocarditis

**Frank L. Magoon**, St. Louis, St. Louis College of Physicians and Surgeons, 1892, member of the Missouri State Medical Association, past president of the board of education, and formerly vice president of the board of police commissioners, aged 70, died, January 17, of heart disease

**Mary Bunker Jepson** @ Olean, N. Y., Hering Medical College, Chicago, 1895, past president of the Cattaraugus County Medical Society, on the staff of the Olean General Hospital, aged 70, died, January 2, in Miami Beach, Fla., of chronic lymphatic leukemia

**Peter D. Bixel** @ Pandora, Ohio, Eclectic Medical Institute, Cincinnati, 1901, formerly county coroner, president of the county board of health, on the staff of the Bluffton (Ohio) Community Hospital, aged 72, died suddenly, January 2, of coronary thrombosis

**Pierre Hoa Le Blanc**, New Orleans, Tulane University of Louisiana Medical Department, New Orleans, 1894, medical examiner for the Life Insurance Company of Virginia, aged 69, died, January 4, of chronic myocarditis and coronary thrombosis

**John Elmer Hammer**, Kiowa, Kan., University Medical College of Kansas City, Mo., 1913, member of the Kansas Medical Society, served during the World War, aged 48, died, January 2, in a hospital at Wichita, of auricular fibrillation

**Lachlan MacLean Beatson** @ Arkansas City, Kan., University College of Medicine, Richmond, Va., 1908, served during the World War, for many years member of the board of education, aged 54, died, January 2, of angina pectoris

**Andrew J. Crawford**, Glouster, Ohio, College of Physicians and Surgeons, Baltimore, 1887, member of the Ohio State Medical Association, formerly member of the state legislature, aged 75, died, January 11, of arteriosclerosis

**Carl James Emmerling** @ Pekin, Ill., University of Illinois College of Medicine, Chicago, 1926, on the staff of the Pekin Public Hospital, aged 37, died, January 23, in the Proctor Hospital, Peoria, of carcinoma of the lung

**Joseph Edward Honore Garand**, Dayton, Minn., School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1899, aged 63, died, Dec 12, 1937, of bronchopneumonia and diabetes mellitus

**Charles Edwin Jenkins**, Brookfield, Mo., Rush Medical College, Chicago, 1900, member of the Missouri State Medical Association, veteran of the Spanish-American and World wars, aged 67, died, January 29, of cerebral hemorrhage

**Martha Estelle Hixson**, East Lansing, Mich., Grand Rapids Medical College, 1907, formerly a member of the board of education of Grand Ledge, aged 70, died, January 1, in Haslett, of cerebral hemorrhage and hypertension

**Mary E. Hagadorn**, Pasadena, Calif., University of Southern California College of Medicine, Los Angeles, 1892, member of the Associated Anesthetists of the United States and Canada, aged 80, died, January 4, of chronic myocarditis

**Ralph Dart** @ Rock Island, Ill., Rush Medical College, Chicago, 1903, past president of the Rock Island County Medical Society, at one time health commissioner, aged 57, died suddenly, January 15, of coronary occlusion

**William Thomas Heffernan**, Spring Valley, Calif., Medical College of Ohio Cincinnati, 1889, member of the California Medical Association, aged 78, died, Dec 30, 1937, of cerebral hemorrhage and bronchopneumonia

**Beresford Harty Thompson** @ Brooklyn, Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1908, served during the World War, aged 52, died in December 1937, in St. John's Hospital of coronary thrombosis

**Benjamin B. Griffith**, Vincennes, Ind., Jefferson School of Medicine, Louisville, 1882, Missouri Medical College, St. Louis, 1884, member of the Indiana State Medical Association, aged 75, died, January 16, of coronary occlusion

**Shubel M. Moulton**, Minneapolis, University of Louisville (Ky.) Medical Department, 1892, Northwestern University Medical School, Chicago, 1893, aged 71, died, January 22, in the Swedish Hospital, of lobar pneumonia

**Edwin R. Hickerson**, Moberly, Mo., St. Louis Medical College, 1885, member of the Missouri State Medical Association, on the staff of the Wabash Employees Hospital, aged 76, died, January 4, of coronary thrombosis

**Louis Mackler** @ Atlantic City, N. J., Jefferson Medical College of Philadelphia, 1917, served during the World War, aged 42, was drowned, January 11, near Bel Air Md., when his car skidded and went into a stream



**Simon Gurewitch**, Chicago St. Louis College of Physicians and Surgeons, 1917, Chicago Medical School, 1922, aged 56, died, January 24, in the Michael Reese Hospital, of generalized peritonitis, secondary to cholecystitis

**William Edgar Othello Johnson**, Madison, Mo., Louisville (Ky.) Medical College, 1884, for many years county coroner, aged 81, died, Dec 3, 1937, in the McCormick Hospital, Moberly, of chronic nephritis

**Ira Wilson Ellis**, Murphysboro, Ill., Medical College of Indiana, Indianapolis, 1883, formerly mayor, aged 79, on the staff of St. Andrew's Hospital, where he died, January 20, of carcinoma of the ascending colon

**Jacob Frederick Stock**, Woodbury, Pa., Jefferson Medical College of Philadelphia 1890, aged 83, died, Dec 4, 1937, in the Nason Hospital, Roaring Spring, of bronchopneumonia, chronic nephritis and myocarditis

**Henry M. Allen**, Leesville, La., College of Physicians and Surgeons, Dallas, Texas, 1907, parish coroner, aged 59, died, January 21, in the Baptist Hospital, Alexandria, of encephalitis, influenza and bronchopneumonia

**Paul Sheldon Scholes**, Canton, Ill., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898, served during the World War, aged 67, died, Dec 9, 1937, of paralysis agitans

**Reuben Hills Bemish**, Darien, Conn. University of Pennsylvania Department of Medicine, Philadelphia 1887, aged 71, died, January 8, in the Stamford (Conn.) Hospital, of myocarditis and arteriosclerosis

**Harry B. Carty**, Freemansburg, Pa., Medico-Chirurgical College of Philadelphia 1899, member of the Medical Society of the State of Pennsylvania, aged 60, died, Dec 9, 1937, of nephritis and hypertension

**Archibald Armstrong Livingston**, Cedar Hill, Mo., St. Louis College of Physicians and Surgeons, 1907, aged 66, died, January 16, in the Rosiclar (Ill.) Hospital, of arteriosclerosis and cerebral hemorrhage.

**James Maxwell Ware**, Magnolia, Texas (licensed in Texas, under the Act of 1907), member of the State Medical Association of Texas, aged 60, died, Dec 20, 1937, of carcinoma of the liver and intestine

**Charles H. Kaiser**, Hillsboro, Kan., Kansas Medical College Medical Department of Washburn College Topeka, 1900, member of the Kansas Medical Society, aged 64, died, January 2, of coronary occlusion

**John J. Bethea**, Hattiesburg, Miss., Tulane University of Louisiana Medical Department, New Orleans, 1889, aged 74, died, January 24, in the Methodist Hospital, of metastatic carcinoma of the lung

**Charles Obra Cron**, Camp Douglas, Wis., College of Physicians and Surgeons, Keokuk, Iowa, 1896, member of the State Medical Society of Wisconsin, aged 65, died, January 2, of coronary disease

**Alvah Graves Ray** Ⓢ Jackson, Ohio, Kentucky School of Medicine, Louisville 1894, member and past president of the city board of education, aged 70, died, January 19, in an automobile accident

**Arthur Spencer Ayres**, Indianapolis University of Vermont College of Medicine, Burlington, 1888, member of the Indiana State Medical Association, aged 74, died, January 19, of pneumonia

**Thomas Edward Horner** Ⓢ Atchison, Kan., Kentucky School of Medicine, Louisville, 1897, aged 62, on the staff of the Atchison Hospital, where he died, January 16, of coronary thrombosis

**Robert Beatty Castree**, Ballston Spa, N. Y., Albany (N. Y.) Medical College, 1901, for many years county coroner and jail physician, aged 61, died, Dec 28, 1937, of coronary thrombosis

**Frederick J. Burgess**, Hot Springs National Park, Ark., College of Physicians and Surgeons Little Rock, 1910, aged 54, died, January 27, of septicemia, acute nephritis and diabetes mellitus

**George W. Bromell**, Denver, Eclectic Medical University, Kansas City, Mo., 1911, member of the city board of health, aged 69, died, January 23, in Atlanta, Ga., of chronic myocarditis

**Henry Bernhardt Weiper**, Lower Lake, Calif., Rush Medical College, Chicago, 1884, at one time mayor of Durand, Wis., formerly health officer, aged 89, died, Dec 11, 1937, of pneumonia

**Clifford Walcott Kellogg**, Higganum, Conn., Yale University School of Medicine, New Haven, 1896, aged 76, died, January 31, in the Middlesex Hospital, Middletown, of pneumonia

**Charles Barland Hogeboom**, Huntsville, Ala., Medical Department of Grant University, Chattanooga Tenn., 1900, aged 60, died suddenly, January 12, of acute dilatation of the heart

**Elmer Hoffman**, Sharon, Wis. (licensed in Wisconsin under the Act of 1899), aged 74, died, January 28, in the Walworth County Hospital, Elkhorn, of nephritis and chronic myocarditis

**George Fellows McCormack**, New Orleans, Hahnemann Medical College and Hospital, Chicago, 1906, aged 54, was found dead, January 14, of hemorrhage and shock due to a fall

**Louis Edward Madden**, Denver, University of Colorado School of Medicine, Denver, 1927, on the staff of St. Joseph's Hospital, aged 39, died, January 21, of pulmonary tuberculosis

**Frances Margaret Lane**, Cody, Wyo., Hering Medical College, Chicago, 1898, member of the Wyoming State Medical Society, aged 59, died, January 19, of influenza and pneumonia

**John Peters Rothermel**, Reading, Pa., University of Pennsylvania Department of Medicine, Philadelphia, 1889, aged 71, died, Dec 6, 1937, of coronary thrombosis and arteriosclerosis

**Raymond Hensel**, Niagara Falls, N. Y., Albany Medical College, 1913, member of the Medical Society of the State of New York, aged 47, died, Dec 2, 1937, of coronary thrombosis

**Oscar Frederick Ziegler** Ⓢ Wildwood, N. J., Hahnemann Medical College and Hospital of Philadelphia, 1921, aged 40, died, Dec 19, 1937, of angina pectoris and valvular heart disease

**Agnes Emilie Hansen**, Santa Ana, Calif., College of Physicians and Surgeons of San Francisco, 1907, aged 55, died, Dec 19, 1937, of shock and exhaustion due to a crushed chest

**Robert Judson Sharp**, Columbus, Ohio, University of the City of New York Medical Department, 1883, aged 83, died, Dec 15, 1937, of lobar pneumonia and chronic myocarditis

**Lynn H. Parker**, Parsons, Kan., Kansas City Hahnemann Medical College, 1914, member of the Kansas Medical Society, aged 51, was killed, January 2, in an automobile accident

**William H. Monahan**, Jackson, Ohio, Medical College of Ohio, Cincinnati, 1874, for many years county coroner, aged 87, was found dead, January 18, of cerebral hemorrhage

**Edgar Henry Howell** Ⓢ San Francisco, Hahnemann Medical College of the Pacific, San Francisco, 1907, aged 54, died, Dec 30, 1937, of coronary thrombosis and myocarditis

**Augustine T. Holcomb**, Novi, Mich., Western Reserve University Medical Department Cleveland, 1884, aged 76, died, January 18, in a hospital at Northville, of pneumonia

**Walter C. Whiting**, West Bridgewater, Mass., Yale University School of Medicine, New Haven, 1881, aged 79, died, Dec 8, 1937, of paralysis agitans and arteriosclerosis

**William H. Borget**, Buffalo, Toledo Medical College, 1886, aged 80, died, January 12, in the Douglas Memorial Hospital, Fort Erie, Ont., Canada, of Adams-Stokes syndrome

**Henry Randolph Garland**, Washington, D. C., Columbian University Medical Department, Washington, 1897, aged 81, died, January 2, of arteriosclerosis and myocarditis

**Uriah C. Carson**, Long Beach, Calif., Cincinnati College of Medicine and Surgery, 1878, aged 82, died, Dec 26, 1937, of carcinoma of the prostate, nephritis and uremia

**Walter Lenehan**, Standish, Mich., Vanderbilt University School of Medicine, Nashville, Tenn., 1901, aged 60, died, January 17, in a sanatorium at Howell, of pneumonia

**Douglas Wallace**, Winnipeg, Manit., Canada, Manitoba Medical College, Winnipeg, 1913, aged 53, died, Dec 23, 1937, in the Winnipeg General Hospital, of endocarditis

**James T. Eslin**, Washington, D. C., Georgetown University School of Medicine Washington, 1891, aged 80, died in January, of accidental illuminating gas poisoning

**John Bristol Yates**, Denver, Kentucky University Medical Department, Louisville, 1905, aged 60, died, Dec 23, 1937, of myocarditis, pulmonary tuberculosis and nephritis

**Thomas Arthur Graven** Ⓢ Wooster, Ohio, Jefferson Medical College of Philadelphia 1900 served during the World War, aged 67, died, January 24, of myocarditis

**Thomas Richards Griffith**, Riverside, Calif., Boston University School of Medicine, 1898, aged 72, died, Dec 18, 1937, of arteriosclerosis, renal insufficiency and uremia

**William A. Brantley**, Atlanta, Ga., Georgia College of Eclectic Medicine and Surgery, Atlanta 1897, aged 88, died, January 3, of bronchopneumonia and influenza



**Robert Long Boling**, San Francisco, University Medical College of Kansas City, Mo., 1897, aged 70, died, Dec 21, 1937, of myocarditis and hypertrophy of the prostate

**Robert Rush Goad** Ⓢ Hillsville, Va., University College of Medicine, Richmond, 1911, bank president, aged 53, died suddenly, January 27, of coronary thrombosis

**Charles Adolph Erickson**, Rockford, Ill., Chicago College of Medicine and Surgery, 1910, aged 60, died, January 24, in St. Anthony's Hospital, of bronchopneumonia

**Rufus Henry Finefrock**, Prospect, Ohio, Starling Medical College, Columbus, 1896, formerly state senator, aged 67, was killed, January 12, in an automobile accident

**George R Logan**, Enterprise, Ky., Kentucky School of Medicine, Louisville, 1890, aged 81, died, January 20, in St. Joseph's Hospital, Lexington, of pneumonia

**Joseph Edward Gavin**, New York, University and Bellevue Hospital Medical College, New York, 1917, aged 62, died, January 26, in Miami, Fla., of heart disease

**William Grant Bird**, Fenton, Mich., Detroit College of Medicine, 1895, fellow of the American College of Surgeons, aged 69, died, January 21, of heart disease

**Charles Nathan Caton**, Wynona, Okla., Vanderbilt University School of Medicine, Nashville, Tenn., 1901, aged 61, died, Dec 26, 1937, of coronary thrombosis

**Patrick E Mills** Ⓢ Chicago, Northwestern University Medical School, Chicago, 1901, aged 65, died, January 9, in the Mercy Hospital, of carcinoma of the liver

**F Emerson Daigneau**, Austin, Minn., University of Vermont College of Medicine, Burlington, 1886, aged 75, died, Dec 10, 1937, of coronary disease and nephritis

**Edward P Greene**, Campbell, Calif., State University of Iowa College of Homeopathic Medicine, Iowa City, 1888, aged 78, died, Dec 24, 1937, of myocarditis

**John D Leith**, McCreary, Manit., Canada, Trinity Medical College, Toronto, Ont., 1894, aged 76, died, Dec 14, 1937, of bronchopneumonia and arteriosclerosis

**Charles W Day**, New York, Hahnemann Medical College and Hospital, Chicago, 1892, Civil War veteran, aged 89, died, January 19, of angina pectoris

**Alexander B Davis**, Wilson, Okla., University of Tennessee Medical Department, Nashville, 1893, aged 80, died, January 12, of cerebral hemorrhage

**William T Beebe**, Washington, N C., Howard University College of Medicine, Washington, D C., 1906, aged 58, died, Dec 11, 1937, of bronchopneumonia

**Alfred Peter Holz** Ⓢ Seymour, Wis., Wisconsin College of Physicians and Surgeons, Milwaukee, 1898, aged 64, died, January 22, of chronic myocarditis

**Chauncey David Creviston**, Houston, Texas, Starling Medical College, Columbus, 1900, aged 64, died, Dec 22, 1937, of bronchopneumonia and influenza

**Arthur Bryant Moss**, Lincoln, Neb., Jenner Medical College, Chicago, 1908, aged 54, died, January 28, of mesenteric thrombosis and hepatic carcinoma

**Lewis C Cowen**, Rising Sun, Ind., Medical College of Ohio, Cincinnati, 1874, aged 89, died, January 27, of arteriosclerosis and cerebral hemorrhage

**Jackson B Shepard**, Philadelphia, Howard University College of Medicine, Washington, D C., 1894, aged 68, died, Dec 27, 1937, of hypertensive nephritis

**Naaman Cyrus Miller**, Fostoria, Ohio, Western Reserve University Medical Department, Cleveland, 1882, aged 79, died, January 28, of chronic arthritis

**Frank Orson Mosher**, San Bernardino, Calif., Dartmouth Medical School, Hanover, N H., 1896, aged 70, died, Dec 12, 1937, of pulmonary tuberculosis

**Francis Fenelon Johnson**, San Francisco, Cooper Medical College, San Francisco, 1894, aged 68, died, Dec 21, 1937, of arteriosclerosis and myocarditis

**Lee D Robinson**, Halleck, Mo., Northwestern Medical College, St. Joseph, 1892, aged 78, died, Dec 23, 1937, in St. Joseph, of chronic myocarditis

**Septimus Jasper Kell**, Bluefield W Va., College of Physicians and Surgeons, Baltimore, 1907, aged 57, died suddenly, January 12, of angina pectoris

**Charles Allison Foulks**, Kansas City Kan., Chicago Medical College 1885, aged 79, died Dec 23, 1937, in Compton, Calif., of coronary thrombosis

**Charles F Bassett**, Chicago, Chicago Homeopathic Medical College, 1879, aged 87, died Dec 19, 1937, in Altadena Calif. of coronary thrombosis

**Lorenzo Dow Latham**, Tulsa, Okla., St. Louis College of Physicians and Surgeons, 1896, aged 74, died, Dec. 11, 1937, in Vinita, of lobar pneumonia

**Ross Whittaker Loomis**, Toledo, Ohio, Toledo Medical College, 1903, aged 57, died, Dec 22, 1937, of aortic insufficiency and bronchopneumonia

**John L Livingstone**, Long Beach, Calif., Michigan College of Medicine, Detroit, 1883, aged 83, died, Dec 29, 1937, of carcinoma of the stomach

**Guernsey Reiner Lurger**, Seattle, University of Cincinnati College of Medicine, 1922, aged 40, died, Dec 26, 1937, of pulmonary tuberculosis

**Alfred J Harris**, McAlester, Okla., Missouri Medical College, St. Louis, 1877, Confederate veteran, aged 96, died, January 21, of pneumonia

**Thomas Rea** Ⓢ Yreka, Calif., Oakland College of Medicine and Surgery, 1913, aged 57, died, Dec 1, 1937, of coronary heart disease and aortitis

**Ezra Adonis Shippey**, Broadus, Texas (licensed in Texas under the Act of 1907), aged 69, was found dead in bed, Dec 28, 1937, of endocarditis

**William S Brownell**, Detroit, Detroit College of Medicine 1892, served during the World War, aged 69, died, January 24 of coronary thrombosis

**Sidney Avery Clark** Ⓢ Northampton, Mass., Harvard University Medical School, Boston, 1891, aged 72, died, January 14, of coronary thrombosis

**Hamilton Worth Emanuel**, Milnor, N D., Fort Wayne (Ind.) College of Medicine, 1880, aged 80, died, January 4, of coronary occlusion

**Welch Michael Powers**, Tacoma, Wash., Creighton University School of Medicine, Omaha, 1934, aged 29, died, January 8, of pneumonia

**Edward Hood Julien**, Yreka, Calif., Detroit College of Medicine, 1895, aged 66, died, Dec 16, 1937, of uremia and gastric hemorrhage

**Charles Ross Campbell**, Chester, W Va., Starling Medical College, Columbus, 1903, aged 60, died, January 11, of chronic myocarditis

**Angus Bethune Patterson**, Barnwell, S C., Louisville (Ky.) Medical College, 1871, aged 86, died, January 27, of bronchopneumonia

**Henry Blakeslee Boyden**, Grand Island, Neb., Rush Medical College, Chicago, 1911, aged 48, died, Dec 9, 1937, of lobar pneumonia

**William James Gavin**, Greensburg, Ind., Miami Medical College, Cincinnati, 1880, aged 82, died suddenly, January 19, of heart disease

**Enos Bohnett**, Sterling, Ill., Bennett Medical College, Chicago, 1899, aged 71, died, Dec 13, 1937, in East Moline, of myocarditis

**William H Cohee**, Marietta, Ind., Medical College of Indiana, Indianapolis, 1898, aged 70, died, January 19, of coronary occlusion

**Harold Spenceley**, Shedden Ont. Canada, Queen's University Faculty of Medicine, Kingston, 1924, aged 42, died, Dec 4, 1937

**H L Jordan**, Pine Bluff, Ark., Meharry Medical College, Nashville, Tenn., 1903, aged 65, died, January 14, of cerebral hemorrhage

**Charles Ray Parker**, Chicago, Chicago College of Medicine and Surgery, 1913, aged 57, died, January 10, in St. Petersburg Fla.

**Nelson A Sloan**, Brighton, Iowa, Syracuse (N Y.) University College of Medicine, 1888, aged 74, died, Dec 7, 1937, of uremia

**John Cecil White** Ⓢ Blackstone Va., Medical College of Virginia, Richmond, 1927, aged 37, died, Dec 31, 1937, of heart disease

**Florence Howard Bullis**, St. Louis, American Medical College, St. Louis, 1912, aged 60, died, January 6, of heart disease

**Frank Sydney Rounthwaite**, Toronto, Ont. Canada, Trinity Medical College, Toronto, 1895, aged 65, died, Dec 15, 1937

**Albert C Broell**, Chicago, Chicago Medical College, 1889, aged 73, died January 9 of carcinoma of the right tonsil

**William Stanley Mhoon**, Philipp, Miss (licensed in Mississippi in 1911), aged 54, died January 5 of pneumonia

**Zachariah T Goolsby**, Mexia Texas, Barnes Medical College, St. Louis, 1897, aged 68, died, Dec 24, 1937

## Correspondence

### ABSORPTION OF DRUGS AND POISONS THROUGH THE SKIN

*To the Editor*—These comments are prompted by the report of David I. Macht's experiments (*The Absorption of Drugs and Poisons Through the Skin and Mucous Membranes*, *THE JOURNAL*, February 5, p. 409). Macht incorporated drugs in fixed fats, observed systemic reactions of the drugs, and concluded "Such experiments revealed that none of the fixed fats carrying potent drugs were absorbed very readily." If writers on this subject would use the word "absorption" only when they refer to absorption of substances into the blood stream, and "penetration" only when they refer to penetration of substances into or through the skin, much confusion and also, sometimes, faulty deductions would be avoided. Macht, of course, is speaking of penetration into the skin, for certainly he would not expect a fixed fat to be absorbed into the circulation through the skin.

Macht believes that his results should have "great practical significance, particularly to dermatologists," but in dermatologic practice the question of penetration is far more important than that of absorption and on this his experiments throw no light, by reason of the fact that penetration cannot be measured in terms of systemic reaction.

**EXPERIMENT 1**—Into a test tube run a few cubic centimeters of melted lard containing 2 per cent of salicylic acid. Allow it to harden and overlay with a few cubic centimeters of a 20 per cent solution of ferric chloride. Color reaction diffuses quickly throughout supernatant fluid, demonstrating diffusion of salicylic acid into the aqueous ferric chloride solution.

**EXPERIMENT 2**—Same as experiment 1, but substitute petrolatum for lard. No appreciable diffusion of salicylic acid into the ferric chloride follows.

Assume that when the salicylic acid-lard combination is rubbed on the skin it penetrates to the subcutaneous layer; there follows free release and diffusion of salicylic acid into the constantly flowing aqueous circulation.

Assume that when the salicylic acid-petrolatum combination is rubbed on the skin it penetrates as well as the lard combination; there follows no release and no diffusion into the circulation.

This indicates that two different vehicles may penetrate the skin equally well but show widely different systemic reactions.

Unlike fixed oils, essential oils may conceivably be absorbed directly into the circulation but only to the extent to which they are soluble in water.

**EXPERIMENT 3**—In a small test tube place 1 cc of methyl salicylate and overlay with 1 cc of 20 per cent ferric chloride. A characteristic blue ring forms immediately and color diffuses upward, being quickly discernible throughout the overlying fluid.

This experiment records the diffusion of dissolved methyl salicylate from the oil-water interface. In the experiment this interface is relatively small compared with the total volume of oil. If, however, the 1 cc of oil is spread over a large area of skin the relative interface area is tremendously increased and further, if one considers that now the water side of the interface is a constantly flowing stream, one perceives a possible clue to Macht's experimental observations.

If this is the answer, should it not lead to the conclusion that water itself is the most suitable vehicle? It probably would be were it not for the outer lipocorneal layer, through which water does not pass. It is conceivable that essential oils pierce this barrier more readily than fixed oils, but there is nothing in Macht's experiments to prove or disprove it.

The problem of skin penetration and absorption of substances into the circulation is far more than a mechanical one, it involves many physicochemical and biologic considerations as varied as the substances with which one deals. Not until these problems have been solved will the local treatment of skin disorders be placed on a really rational basis.

Take, for example, the official boric acid ointment, with which I have experimented.

**EXPERIMENT 4**—Saturate a strip of blue litmus paper with water, place on a glass slide and cover with boric acid ointment, U. S. P. Observe the reverse side for the action of boric acid on the blue litmus paper, which should turn pink. After several hours the paper is still blue, showing that there has been virtually no penetration of boric acid into the moist litmus paper.

It can rationally be deduced that when this ointment is used on wounds or ulcers and on those skin disorders in which the lesions are bathed in aqueous secretions, it can have little or no effect, at least as far as the boric acid is concerned. However, the petrolatum can be treated to permit ready release of the boric acid.

While petrolatum virtually locks up boric acid, it releases other substances quite readily. It is obvious that intelligent control of this release factor for various vehicles and drugs would be a distinct advance in the local treatment of skin disorders.

My experiments have convinced me that there will probably never be such a thing as a universal ointment vehicle which is better than any other vehicle. On the contrary, I believe that the more the problem is studied the more it will be realized that vehicles should be individualized in accordance with the drugs used, the therapeutic aim, and special needs of the disorder to be treated.

J. J. SEELMAN, M.D., Milwaukee

### HIGH HUMAN TEMPERATURE

*To the Editor*—In *Queries and Minor Notes* in *THE JOURNAL*, February 5, page 461, in a discussion of the highest temperature that the human body can reach and still survive, doubt is expressed as to temperatures higher than 108 F. While testing the efficacy of different anti-scarlet fever serums administered intravenously to patients with scarlet fever at the Willard Parker Hospital during the years 1930-1932, I observed survival repeatedly following temperatures of 107 or 108, and occasionally after higher ones—in one case even after a temperature of 110 F. Unquestionably more temperatures greater than 108 F. would have been seen if immediate means for their reduction had not been instituted. However, when a temperature of 107 F. was reached, about a degree lower in children, the patient began to get restless and delirious so that drastic antipyretic measures had to be commenced. These consisted of continuous colonic flushing with ice, as milder measures were found to be useless. For example, in one case, alcohol sponges, acetylsalicylic acid, an ice cap and fluids did not reduce the temperature but on the contrary it kept on rising till it reached 109 F., when the patient died. The patient who had a temperature of 110 F. was given continuous colonic flushing with ice for twenty minutes but the temperature was still 108 in the axilla, 107 after a half an hour, and 102 F. at the end of forty-five minutes, when the treatment was discontinued. In the morning, which happened to be six hours later, the temperature was normal and remained normal until the day of discharge, with the patient showing no ill effects from having been at the point of death. These were elevated temperatures for short periods which usually came about an hour following the administration of the antitoxin and in the majority of instances were preceded by a chill, although the patient with the temperature of 110 F. did not have a chill. In order to prevent any tragic end, the onset of these temperatures had to be watched for carefully. How-

ever, if they were promptly treated no harmful results were observed. These were all rectal temperatures. Thus, the human body can survive a temperature of 110 F and possibly even higher for a short duration and not suffer any discernible adverse consequences.

FERDINAND G. KOJIS, M.D., New York

### TESTOSTERONE PROPIONATE

*To the Editor*—In view of the unwarranted and apparently nation-wide publicity that our paper which was read before the local medical society the other evening received, we think it expedient to publish this statement.

We gave a preliminary report concerning our studies with testosterone propionate before the Baltimore Medical Society on the evening of March 4, and an entirely erroneous newspaper report has spread throughout the country. Our paper reported only a part of our work on patients with hypogonadism, either primary or due to castration. In these the results were very promising. We made no reference to rejuvenating senile men or men with psychic impotence and that sort of condition. However, it seems that an entirely wrong interpretation has been taken by the press reports, and we feel that physicians who have not used this drug should be made aware that we have used enormous dosages, which are not yet practical for routine purposes in other fields that our work is entirely experimental and preliminary and that there is no occasion for any widespread use as yet among the members of the medical profession. It is most unfortunate and regrettable that the public and the members of the medical profession should have their attention called to an apparently valuable drug in such a manner.

As you are probably aware, the development of testosterone is not original on our part, and there are other clinics, both here and abroad, that are making the same clinical observations. We regret exceedingly that our report before the local medical society was misinterpreted.

JOHN EAGER HOWARD, M.D.

SAMUEL A. VEST, M.D.

Baltimore

### SELENIUM POISONING

*To the Editor*—In your issue of Dec. 25, 1937, under Current Comment you report on the retention and elimination of selenium in an article by M. I. Smith, B. B. Westfall and E. F. Stohlman Jr. (*Pub. Health Rep.* 52:1171 [Aug. 27] 1937). By implication one may infer that interruption of ingestion of selenium is followed by its removal from the system and cessation of injury.

The paper by Dr. Hazel E. Munsell, Grace M. DeVaney and Mary H. Kennedy indicates that such injury persists even though the selenium is removed from the animal body. Also it shows rather conclusively that organic selenium is of the same order of toxicity as sodium selenite. This is also shown by the work of the late Dr. Kurt Franke of South Dakota and his associates. A summary of the data along this line is given in Bulletin 311, Alkali Disease or Selenium Poisoning by Alvin L. Moxon of the South Dakota Agricultural Experiment Station, Brookings, S. D. (1937). Unfortunately I have no extra copy of this paper to send you.

We have abundant information through our work to indicate the probability that organic selenium in green plants is fully as toxic or at least as quickly available as inorganic selenium.

HORACE G. BYERS, Washington, D. C.

Chief, Soil Chemistry and Physics Research  
Division, Bureau of Chemistry and Soils,  
U. S. Department of Agriculture

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

### HEALTHY CHILD OF SYPHILITIC PARENT

*To the Editor*—A woman aged 46 married has syphilis contracted at 23 years of age and untreated until the present time. A son aged 19 has a positive Wassermann reaction. Hutchinson's teeth and syphilitic iriditis. He is under treatment at present. A daughter aged 10 has negative Wassermann and Kahn reactions on repeated tests and after a provocative injection of arsphenamine. I have discussed the negative reaction of this girl with several competent syphilologists and they are divided as to the necessity of antisyphilitic treatment. Is it possible that this young girl is entirely free? Kindly advise me what course to adopt in this case.

M. D. Quebec

**ANSWER**—The evidence offered with regard to the 10 year old daughter indicates that the child does not have congenital syphilis. The absence of signs of congenital syphilis and the repeatedly negative reactions are sufficient evidence to eliminate the possibility of syphilis even though the mother has syphilis and a brother has the congenital form of the disease. It is not uncommon for the oldest child of a family to have congenital syphilis while the younger children manifest neither clinical nor serologic signs of it. In view of the absence of confirmatory signs in the 10 year old daughter in question there is no need to treat her for syphilis as she probably does not have the disease.

### LAUGHLIN TEST FOR SYPHILIS

*To the Editor*—Is the Laughlin test for syphilis as reliable and dependable as the Wassermann, the Kahn, the Kline, the Meinecke, Kolmer's or any other modern and trustworthy test for syphilis? Is it an office procedure? About how long would it take to execute that particular test for syphilis? What special equipment will be required to perform this test in the office? How much would it cost and where can such equipment be procured? Where can the antigen be obtained for the performance of the Laughlin test, what is its price? How long will it keep without spoiling? What is the technique of the Laughlin test for syphilis? In the case of inaccessible veins occasionally encountered in obese individuals in infants and others can blood be drawn for that test from either a finger or the lobe of an ear or must it necessarily be drawn from a vein?

ENILIO L. HERGFERT, M.D., Brooklyn

**ANSWER**—The questions raised in this letter are of considerable importance, particularly in connection with present day interest in campaigns against syphilis. Instead of answering these questions directly, it may be well to ask: When may a test for syphilis be considered trustworthy? Until recently it was assumed that for a new test to gain a foothold it must be subjected to trials in many different laboratories and as indicated by numerous publications, most of these trials must lead to satisfactory results. The Kahn test, for example, was described in its present form in 1923, yet not until 1928 when the test was demonstrated at the League of Nations Conference at Copenhagen did the test begin to gain recognition and during that year, Kahn listed nearly 250 references to this test. Now, however, the publication of a new method or modification attracts almost immediate interest. This fact, however, does not mean that a new and relatively untried method may safely be used as a diagnostic agent for syphilis. Indeed, during the past several years an author of a new method or modification has been having an excellent opportunity to prove the worth of his particular test by including it in the Evaluation Studies of Tests for Syphilis carried on yearly by the United States Public Health Service. These studies throw light not only on the specificity and sensitivity of a given test but also whether or not this test compares favorably with the more established American tests.

The Laughlin test was described in the *Canadian Medical Association Journal* (33:179 [Aug.] 1935) and Robinson and Stroud spoke of it favorably in a note in *THE JOURNAL* (April 3, 1937, p. 1170), claiming 93 per cent agreement with the Wassermann test and 97 per cent agreement with the Kahn test. The test utilizes Kahn antigen to which has been added balsam and a dye. A drop of the antigen reagent is mixed with a drop of serum on a slide and the results are read by means of the microscope. The Laughlin antigen with full directions for its use may be obtained from the Lederle Laboratories of New York, which has been advertising the test as an office procedure. Actually with the present-day availability of private, hospital

and public health laboratories, there seems to be no excuse for physicians to perform tests for syphilis in their office in connection with their practice. A laboratory method is of clinical value provided the method is of established reliability and is performed by one who is expert in the particular method. Many might add a third condition, namely, that the one who performs it should not be familiar with the clinical diagnosis, if any. If a physician has a strong feeling that the clinical diagnosis in a given patient is syphilis, he may not be psychologically fit to read the result of a test on the blood serum of the patient.

Blood may be obtained from a finger or ear lobe for practically all available tests for syphilis.

#### PURULENT DISCHARGE FROM NIPPLE AND CANCER

*To the Editor*—Several patients with large breasts and inverted nipples discharging purulent material have recently consulted me. Is this a contributing cause of cancer of the breast? What can be done for these patients?

M D California

**ANSWER**—It is important to decide whether the purulent material actually comes from the nipple or whether it is simply an accumulation on the depressed nipple. Not infrequently when a nipple is below the surface of the breast, especially in women with large, fat breasts, foreign material such as perspiration or dirt may accumulate in the depressed area and result in a purulent discharge. This is especially true if women do not take particular pains to cleanse these inverted nipples properly. Hence the nipples should be elevated and gently squeezed to see whether the purulent material actually escapes from the ducts. If the purulent matter is due only to lack of sufficient cleanliness, the treatment is simple and the prognosis good. If, however, the purulent material comes from the ducts in the nipple it is essential to rule out the presence of cancer. A purulent discharge in the breast rarely causes cancer. On the other hand, it may often be caused by cancer. An examination of the breasts with the Cutter lamp or by an ordinary roentgenogram may be of assistance. The treatment of these purulent discharges should first be conservative. That is, hot moist dressings should be applied from time to time and also dry heat. If the discharge does not subside under this conservative management it is advisable to incise the involved area. If an abscess is encountered incision is the proper treatment anyway. If a carcinoma is found, a radical operation must be performed immediately. Hence at the time of the exploratory incision, the operating room must be ready for a biopsy and radical operation.

#### AGRANULOCYTOSIS FROM AMINOPYRINE

*To the Editor*—In the April issue of *Consumers Union* there is an article on Aminopyrine. Will you kindly inform me whether the use of this drug is as dangerous as this article indicates.

W ALLEN GRIFFITH M D Berwyn Md

**ANSWER**—The query can be answered by stating that in the light of present knowledge the information in the article mentioned is essentially correct.

Certain points relative to the role of aminopyrine and other drugs in the production of agranulocytosis bear repeated emphasis. First, it is now generally accepted over the world that aminopyrine and its many combinations, including both proprietary and patented remedies for the relief of pain, are capable of producing agranulocytosis in an occasional person, presumably one that is sensitive or "allergic" to the drug. The nature of the sensitivity is not known. Furthermore, it is believed that a large amount of the drug is not necessary to produce depletion of the neutrophilic white cells. Apparently in an occasional patient this may result from only one or two doses of as little as 5 grains (0.03 Gm) each. However, it seems that most cases develop after the long continued use of the drug.

Aminopyrine is an excellent pain relieving agent and for this reason it has been used as the essential ingredient in many patented remedies that are sold to the public without any indication as to its presence. Because of this, the disease still is seen mainly in persons who resort to self medication and purchase such remedies from drug stores. A list of some of these preparations was given by Kracke and Parker in *THE JOURNAL*, Sept 21, 1935 page 960.

Physicians now use aminopyrine with caution, usually accompanied by careful checking of the blood picture. Because of this the disease has apparently decreased markedly from the high peak of more than 1,500 deaths in the United States alone in the three years that ended in 1934. It would appear that it is not safe to use aminopyrine and its combinations under any conditions, since there is the ever present chance that the patient may be sensitive to the drug and, since the disease often develops abruptly and the white cells are depleted before it is

recognized clinically, the use of the drug is always fraught with danger. It should be pointed out that there is evidence incriminating other drugs as etiologic agents in this disease. Most noteworthy of these is dinitrophenol, widely used as a fat reducing agent. Also in rare instances the disease can follow the use of arsphenamine and other organic arsenical compounds. Safe rules for physicians to follow are to refrain from the use of aminopyrine and dinitrophenol, so far as possible, if it is necessary to use them, the white cell count should be carefully checked at frequent intervals, patients should be cautioned against the purchase of these drugs and any other pain-relieving remedy on which the formula is not stated, constant activity should be exercised to promote legislation that will prohibit the unrestricted sale of such agents to the public. It seems likely that as long as these drugs are available for public consumption there will be agranulocytosis with its high mortality, but that, if they could be dispensed only on prescription, the disease might eventually disappear.

#### INSULIN IN DIABETES

*To the Editor*—Moderately severe diabetes is sometimes treated with two doses of insulin (25 units each) given with the morning and evening meals and little or no insulin with the noon meal. A says that little or no insulin is required for the noon meal because the morning dose of insulin continues to act for six to eight hours and so carries over its effect for the noon meal (which should be lower in carbohydrates). B says that the noon meal requires little or no insulin because of the increase in tolerance following the intake of carbohydrates in the morning (the noon meal should be rich in carbohydrates). Please give the correct answer, with reasons also references for further details.

ERWIN R KABACK M D New York

**ANSWER**—Both answers are partially correct. That the diabetic patient is at his worst in the morning better at noon and best of all in the evening is almost a proverb. In the morning his storage of carbohydrate is low and, as all agree, whether in diabetes or in health that is the time he utilizes carbohydrate least well, at noon and by the night meal increasing quantities of carbohydrate have been brought into action and are being metabolized and in consequence the entire machine is running more normally. Many a diabetic patient can take 10 or 20 Gm of carbohydrate on retiring and wake up sugar free.

The blood sugar, save in the mild cases, which would be ruled out by the premises of the question, is higher in the morning. One would burden it therefore with the least quantity of carbohydrate at a meal and in fact usually this is done by giving one fifth at breakfast and two fifths at each of the other two meals.

Exercise is eliminated at night, so the body begins the day without the advantage of it, but with the progress of the day its favoring influence becomes felt.

But why use regular insulin 25-0-25? Is not the blood sugar of the patient high on rising? Is not a retiring dose of 2, 3 or 4 units required on continued use of regular insulin? With protamine zinc insulin, possibly supplemented by regular insulin, presumably the blood sugar on rising would be nearer normal.

#### MECHOLYL IONTOPHORESIS IN VASCULAR DISEASE

*To the Editor*—How efficacious is mecholyl in the treatment of chronic peripheral vascular disease applied by iontophoresis?

M D Massachusetts

**ANSWER**—The administration of mecholyl (acetyl beta-methylcholine chloride) by means of iontophoresis has been carefully studied for its value in the treatment of all common types of chronic peripheral vascular disease. It has not been found to be efficacious for patients with arteriosclerosis or arteriolosclerosis senilis, or arteriosclerosis with diabetes. It has not been of value in most cases in association with thromboangitis obliterans. It has no effect on patients with chronic lymphedema. It is of established value for the healing of chronic varicose and postphlebitic ulcers and has healed many of these following the failure of varicose vein injections and other forms of treatment to heal them. It has a palliative effect in many cases of Raynaud's syndrome, reducing the number and intensity of the attacks but not affecting the course of the disease. In a considerable percentage of cases of scleroderma the course of the disease has been affected favorably, with loosening of the skin and a general increase in local circulation. Accompanying infection and nervous shocks or anxiety apparently prevent improvement in these cases and in some patients there has been unexplained lack of improvement. Patients suffering from mild spasms of the peripheral arterial tree due to trauma such as the group known as "pneumatic

hammer disease," have been relieved of their symptoms in practically all instances by mecholyl iontophoresis.

It should be remembered that in general these conditions are chronic and that improvement from whatever method is inevitably slow. In most instances from thirty to fifty treatments are necessary before judgment as to the value of the method in an individual case can be rendered.

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#### SENSITIZATION TO EPINEPHRINE

To the Editor—Several years ago while having a dental extraction I discovered that I was sensitive to epinephrine. About one year ago I had a foreign body removed from my left eye (cornea) and this was followed by a phlyctenular keratitis. I suffered excruciating pain as these spots appeared on the cornea. This continued until one day my physician said:

"This looks like an allergic eye. I then promptly informed him that there was only one thing I was sensitive to and that was epinephrine. He stopped putting epinephrine into my eye and I stopped using phenacaine ointment (which contains epinephrine) and I made a rapid recovery. Since then I have been given an intradermal injection of epinephrine (wheal formation) and within two minutes I had palpitation, trembling, pallor, weakness, a rise in blood pressure of almost 40 mm of mercury and a corresponding rise in pulse. Can a person be desensitized to epinephrine? What is the etiology of sensitization? What is the best procedure to follow?"

M D New York

ANSWER—The sensitivity in question may be due to epinephrine, but in view of the fact that many epinephrine preparations contain preservatives this factor should also be considered as a possible causative agent. Not only the different brands vary as to the preservative used but different forms of the same brand frequently contain different preservatives. A great many people are oversensitive to epinephrine and have a lowered threshold to stimulation of the sympathetic system. No method of desensitization to the epinephrine itself is worth undertaking. Frequently such sensitivities are lessened by avoiding fatigue and maintaining good health.

#### MASTURBATION IN SMALL CHILD

To the Editor—What is the treatment for a 2 year old boy who masturbates? The child has been circumcised. There are no discoverable physical defects.

M D New York

ANSWER—The treatment of masturbating children must begin with the correction of all local disorders in the region of the genitalia. The clothes should be of proper size so that the rubbing of tight clothes does not irritate the penis. Itching skin disorders, such as intertrigo or pediculosis, in the perianal region should be remedied, oxyuriasis (pinworms) if present should be eradicated and so on. Excessive fondling and excitation on the part of parents, servants or older children should be discouraged. Proper emotional balance, physical hygiene and healthful sleeping arrangements should be instituted in the home. Masturbation in a child may be just one manifestation of faulty emotional adjustments resulting from various factors, such as the parents prolonging his infancy by excessive "babying," excessive nagging and punishing, excessive attention and spoiling, or too much emotional excitement in playing with other children. Especially if this is an emotional child, a calm, properly balanced environment is essential. Mechanical restraint is definitely contraindicated. Avoid sending the youngster to bed as a punishment for some misdeed, because having nothing else to do and needing gratification gives impetus to the act. The child should be put to bed at night and for the afternoon nap only when he is tired enough to fall asleep at once, and not allowed to remain in bed in the morning unoccupied for a long time as these are the times when the act is most practiced. During the day his time must be completely occupied by regulating his activities and never leaving him entirely to himself. The habit should not be made the topic of discussion in the presence of the child, nor should punitive measures, such as whipping, shaming, nagging, pleading or bribing ever be used. Nor should he be told that it is dirty or naughty or that the habit will make him sick. A youngster should never be surprised or caught masturbating. When he is found indulging, without referring to the act he should be given some pleasant and interesting task, or invited to play a game which will dis-

tract his attention from the genitalia and interrupt his pre-occupations, in a manner which he has no occasion to resent. Close observation of these children is necessary, but not springing to the extent of arousing fear of being constantly suspected.

It is important to enlighten the family that no great harm will result and that in all probability even if it is ignored and nothing is done, a child of 2 years will sooner or later forget the habit and turn to other forms of amusement, especially if he is otherwise healthy, active and happy.

#### SWELLING AROUND EYES AFTER SEA BATHING

To the Editor—During the month of August I treated two children both suffering from a marked swelling about the eyes. The upper and lower lids were involved with soft swelling and apparently no inflammation. Both gave a history of having been bathing in the ocean the day before. The condition in each case was treated as one of angioneurotic edema with repeated small injections of epinephrine and cold compresses locally. Both subsided within twelve hours without recurrence. Pain was absent throughout. Am I correct in assuming that these cases were on an allergic basis possibly as reactions to cold sea water?

ATTILIO A. TRIPPISELLI M.D., Brooklyn

ANSWER—It is not possible from the description to be sure that the diagnosis of angioneurotic edema is correct, although it seems quite probable. Angioneurotic edema is asymmetrical and rarely involves the two eyes at the same time. As to the cause of the swelling, hypersensitivity to cold may well be a factor. Many such cases have been reported and some serious results have occurred in certain patients who are sensitive to cold water. Some even believe that a certain percentage of drownings is due to anaphylactic shock that occurs in patients who are peculiarly hypersensitive to cold. It might be well to try cold applications to the eyes to see if any swelling will result. There is a possibility too that the swelling may be due merely to the irritation to the eyes (not allergic) from the salt contained in water.

#### COLLECTION AND PRESERVATION OF BLOOD FOR MAILING

To the Editor—Please tell me how to take care of or preserve blood specimens for a Wassermann test. I am obliged to send my work to the state laboratory, and I keep the specimen on ice or in a freezer see that serum is well separated and clear, and then mail it out. During the hot weather, many of my reports from the laboratory show that blood has hemolyzed. What can I do about it?

ERNEST BALL M.D. Sulphur Okla

ANSWER—The collection and preparation of the specimen of blood for shipment to the laboratory are perhaps the most important of the precautions to be taken in securing satisfactory results from serologic tests. Hemolysis is frequently due to the use of unsatisfactory outfits for bleeding. It may result from the retention of solutions if the syringes are sterilized by boiling or even from the force necessary to eject the blood from the syringe into the container. Syringes should not be used unless sterilized by dry heat. The sterilized outfits with Petroff needles are, in general, the most satisfactory and convenient.

In summer, hemolyzed specimens of blood received by mail are often found to be contaminated. A few bacteria that gain access at the time the specimen is collected and that would not render it unsatisfactory for serologic tests if kept for a day or two in the refrigerator or if the work could be undertaken promptly may multiply sufficiently in transit during warm weather to hemolyze the blood. Thus, aseptic precautions should be observed in the collection of blood specimens to avoid contamination, particularly when the specimen is to be subjected to temperatures that favor bacterial growth.

#### APPARATUS FOR MECOYL IONTOPHORESIS

To the Editor—I am interested in the administration of mecholyl by iontophoresis. Can you suggest where I might obtain the necessary apparatus? Can you also list the necessary parts in making a simple galvanic machine?

M D, Michigan

ANSWER—A simple galvanic machine for administering mecholyl by iontophoresis can be assembled from standard parts obtained from, or through, any radio repair store. The following is a list of the parts: one steel cabinet (Bud No 993), one 50 ma milliammeter (Triplett No 321), one 10,000 ohm variable resistance (Yanley E-10M-P) with knob, one rusholider and three 1/16 ampere fuses, one B battery (Burgess No 5308 for use in cabinet or No 10308 for longer life, or both), one single insulated tip jack, one twin insulated tip jack, 30 feet of braided wire (Kinkless RC), three tip plugs for attaching one end of lead wires to tip jacks, three insulated alligator clips for attaching the other end of the wires to electrodes (2 positive one negative electrode) and two insulated spade lugs for attaching two short wires (2 feet long) to the battery.



Salesman 3 of the Radio Department of M and H Sporting Goods Store, 512 Market Street, Philadelphia, will assemble these parts and supply a convenient wooden brace for holding the battery in place. Makers of other machines for this purpose are the Valverde Laboratories, 252 Lafayette Street, New York, and William Balardo, 3102 Kingsbridge Avenue, Bronx, New York.

#### PARENTERAL ADMINISTRATION OF IRON

To the Editor—What is the least painful preparation of iron (with strychnine) that can be used for parenteral administration? I have been using Fraissé's Ferrugineous Compound Ampoules (Fougera & Co.) but my patients complain of severe pain following injection.

EDWARD GIPSTEIN M.D. New London Conn.

ANSWER—The "green iron and ammonium citrates" (now official) is considered the preferable iron preparation for injection purposes, it being claimed that its higher ammonium citrate content as compared with the "iron and ammonium citrates" (of garnet red color) renders it less protein precipitant and therefore its injection less painful. The facts that manufacturers (e.g., Parke, Davis & Co.) prefer to market it in ampoules (of 0.015, 0.05 and 0.10 Gm.) also containing 0.005 Gm. of the local anesthetic quinine and urea hydrochloride, and that it should be given by intramuscular rather than subcutaneous injection, suggest that the problem of painless iron preparation for injection purposes has not yet been solved to entire satisfaction. There is no reason why the desired dose of strychnine nitrate may not be added to the iron solution just before injection. There is, however, no good reason for injecting the strychnine at all, because when the "tonic" effect of strychnine is desired it had better be given in divided doses throughout the day rather than reliance being placed on the effect of an injected single dose that is eliminated from the system within a few hours.

#### TRANSFER OF UNDULANT FEVER

To the Editor—Are there any records of transfer of undulant fever from one human being to another such as by blood transfusion or by a child nursing?

M.D. Tennessee

ANSWER—Although the possibility of transmitting brucellosis (undulant fever) from person to person does exist, a diligent search of the literature reveals no report of such an occurrence.

#### DIPHTHERIA CARRIERS

To the Editor—In THE JOURNAL February 5 page 461 is an inquiry regarding treatment for diphtheria carriers. In our service at Bellevue Hospital my associates and I have been called on from time to time to treat diphtheria carriers from the Municipal Contagious Disease Hospital who have been under restraint and medical care without success for long periods. We have administered roentgen therapy and it has proved successful in practically all cases. Our rationale for this treatment is based on the fact that our experience has shown that irradiation causes a fibrosis and shrinkage of tonsillar tissue. While x-rays are not in themselves bactericidal they do favorably affect inflammatory conditions and the endotoxins formed thereby do destroy bacteria. Therefore roentgen therapy is the proper method for destroying the foci harboring tissue of the diphtheria carrier.

IRA I. KAPLAN M.D. New York

#### BENZEDRINE AND ATROPINE AS CYCLOPLEGIC

To the Editor—An inquiry in the February 26 issue of THE JOURNAL shows misunderstanding regarding the use of benzedrine and homatropine for refraction which might lead to disappointment. McAdams and I use benzedrine both with homatropine and with atropine when those cycloplegics are indicated. The advantage of the combination is that one instillation each of benzedrine with a cycloplegic close together gives approximately the same result as the conventional multiple instillations of the cycloplegic alone with quick recovery. We do not however find it more efficient than prolonged atropinization nor do we space the instillations twenty minutes apart. The report of our experience given at the meeting of the American Academy of Ophthalmology and Otolaryngology is found in the February issue of the American Journal of Ophthalmology volume 21 page 121.

S. JUDD BEACH M.D. Portland Me.

#### KOPLIK'S SIGN

To the Editor—On February 1 a patient came to my office with respiratory symptoms. It was necessary to diagnose at once as a measles epidemic was prevalent. On examining the mouth for Koplik's sign of measles I projected the ultraviolet ray (quartz light) into the mouth. I found a very distinct definition of Koplik's sign making diagnosis of measles easy. When I visited the patient two days later the rash had made its appearance. This is apparently the first time this method of diagnosis has been used to bring Koplik's sign out clearly.

GEORGE B. HERSHEY M.D., Gap Pa.

## Council on Medical Education and Hospitals

### ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty Fourth Annual Meeting held in Chicago  
Feb. 14 and 15 1938

DR. RAY LYMAN WILBUR, Stanford University, Calif.,  
in the Chair

### COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 14—MORNING

#### Report of the Council on Medical Education and Hospitals

DR. RAY LYMAN WILBUR, Stanford University, Calif. This paper will be published in full in THE JOURNAL.

#### Professional Licensure

JOHN KIRKLAND CLARK, New York. One problem which the State Board of Law Examiners in New York is concerned with only most indirectly is the aptitude of the candidate for admission to the profession. This testing is conducted by separate and independent local bodies appointed by the intermediate courts of appeal in the four separate judicial departments of the state, one in New York County, one in the borough of Brooklyn (Kings County) in New York City and the others in Albany and in Rochester. While the unpaid members of the committees on character and fitness are men of high character and ability and devote much time to the problems, they, I believe, would be the first to state that the present method of handling the problem assigned them is not as effective as they would desire. Both doctors and lawyers agree that a man should not be admitted to either profession who is not fitted by personality and temperament to engage in the profession and who has not a character which will enable him to handle successfully and satisfactorily the ethical problems which are bound to confront him. It is obvious from a mere statement of the problem that a board like ours, or a group like the committees on character and fitness, cannot effectively appraise the personalities of the candidates for admission, as to their character content, with anything like the accuracy with which mental abilities can be appraised.

However accurate we have become or may become as to the appraisal of mentality, the work of professional licensure must continue to be unsatisfactory until some more successful method of appraising the character elements in personalities becomes developed into a readily applicable technique. In mental appraisals we can make use of definite types of questions—the propounding of long and intricate problems, writing of essays, the use of "true-false" or short form questions. Would that we could devise some equally efficient system for the appraisal of moral qualities!

Thus far, no such technique has been successfully developed. The opportunities afforded to those engaged in the administration of our medical schools and hospitals give your profession a much wider opportunity for personality study than is afforded to the faculties of our law schools in the appraisal of the ethical qualities of their students. In law schools, particularly in the "part time schools" from which the bulk of our candidates are derived, there is practically no opportunity for the teachers to gain more than a faint impression of even the physical and intellectual personalities of the students who attend the lectures and quizzes. We in the law greatly need the cooperation of your profession, and both professions, I feel, should much more insistently call for aid from our brothers in the general educational world in the solution of this problem. One of the essential difficulties, of course, is that in a large proportion of the cases character formation is so incomplete at the ages of 21 to 25 that an accurate appraisal of the future moral development of the candidate is difficult.

The most interesting of the methods which are being employed is that which the state of Pennsylvania has been



experimenting with. There the process of study of the character and fitness of the individual who desires to become a lawyer begins at the time he enters the law school and continues throughout his course of studies. Each prospective candidate is required to fill out a questionnaire before he begins and is assigned to a practicing lawyer as his adviser. This practicing lawyer is charged with the responsibility of interviewing the candidate from time to time during his law school course and studying his personality, his background, his associations, and his habits of living and of thinking. It seems probable that something along these lines in both professions may well be thoroughly tried out in the endeavor to obtain a more accurate method of testing ethical qualities.

This question of the extent of the existence of an ascertainable moral quality in a youth in his twenties, which quality is not at all accurately appraisable, is one which may well call for thorough psychologic study by members of your profession and by those interested in education.

There is one other subject to which I wish to refer. That is the subject of establishing certified lists of members of the medical profession qualified in the several specialties. The result of the decision of our New York Court of Appeals in the case of *Szold v. Outlet Embroidery Supply Co., Inc.* 274 N. Y. 271, opens up a field for advanced professional licensure which many thought was incapable of establishment as a governmental regulation. If, by such accrediting bodies as are therein recognized, it may be possible hereafter to create a limited group of qualified specialists and confine the giving of expert testimony in court to those who establish that they have been thus licensed and accredited, one of the great scandals in which both of our professions are concerned, namely, the use of incompetent and unqualified doctors who pretend to be specialists, may be largely if not entirely ended.

#### The School of Medicine in the University

ALPHONSE M. SCHWITALLA, S. J., St. Louis. The significance of the professional school's integration in the university is that all the constituent elements of a professional school can have a deeper and wider background than they could possibly have if the professional school were an isolated and self-contained unit. The research function, the teaching function and the welfare function of the professional school, for example, the medical school, thus become chapters in a larger book. Research in any one of the branches of medicine should borrow increased efficacy from the fundamental sciences which are fostered by the university as a whole. The teaching function should derive from the departments of education, psychology, sociology and social work a profounder grasp of the functioning of the human mind. The dynamic function of the medical school should derive meaning from the university's philosophy, economics and public relationships. Similarly too the structural and functional elements of the medical school will derive a profounder meaning when viewed from the standpoint of and when reciprocally they contribute to the corresponding structural and functional elements of the university as a whole. The curriculum of the school of medicine should be enriched in scope by reason of the readily available knowledge in other mental disciplines. The educational methods should experience a periodic rejuvenescence, administration should be liberalized, all of the progressive thinking in practically all fields of human knowledge and experience should more promptly and effectively be placed at the disposal of the medical school for immediate absorption and assimilation. No development in the field of general education should fail in achieving an immediate influence in the school of medicine. Each trend in education which has met the test of approved experience in any particular field should not fail to leave its imprint on a modified trend in a school of medicine. There are valuable trends in our universities which have not as yet found their fullest acceptance in our professional schools. I am thinking, for example of the splendid efforts made by our colleges of arts and sciences in the study of the individual student. The trends toward more careful selection, the study of specific traits as preparations for particular activities, the enlargement and broader concepts of personnel work, the carefully worked out principles in teacher selection, the application of well established procedures in teaching methods, the har-

monization of school curriculums with school objectives—in all these, certain divisions of the universities, in some of them the schools of engineering, in others the schools of law, in others the schools of business administration, and in others the colleges of arts and sciences have outrun if not the schools of medicine as a group then certainly some schools of medicine located in the very universities in which the most profitable work has been done toward the development of new techniques or new procedures, the establishment of new educational methods. Of course, I must insist that in some of our universities the school of medicine is actually in the front rank of the institution's development and is setting the pace not only for the other professional schools but also for the college of liberal arts and the graduate school. But this fact only emphasizes the need of a greater unification in the institution. I am pleading for a recognition by the medical school itself of the objective which it has to prepare physicians who will be equally prepared to practice not only in the spirit of the science but also in the spirit of the art of medicine, to prepare practitioners who will see the deeper meanings for human betterment of the work which they are preparing to do, who will be cultured gentlemen no less than keen diagnosticians, patient but forceful leaders in their communities no less than merely men who earn their livelihood by restoring the sick to health.

With reference to intra-university relationships, the school of medicine must depend on the liberal arts college to a great extent for student selection. Merely to demand a two or three years of college or even a bachelor's degree has in itself relatively little significance for the selection of a student as a student of medicine. Even the emphasis which has recently been thrown on the necessity of eliminating the so called pre-medical curriculum, extremely valuable though that emphasis is and the reciprocal emphasis on the necessity of broad culture as a necessity for medicine, still misses something of the deeper inwardness of the problem. The problem is still the detection of the particular student who should be encouraged to ambition the life and the responsibilities of the medical practitioner. Every school of medicine has much to learn from and much to give to the college of liberal arts in its own university. In these fields of educational endeavor, one would welcome the closest possible communication between the faculties of medicine and the colleges, between the administrators of both institutions, between faculty committees which have related functions in their separate institutions. One would welcome equally increased efforts at promoting these relationships on the part of the higher officials of the university who are responsible for the programs of the institutions as a whole, the presidents and the members of our various university boards and committees whose interests embrace both the professional and the professional units of their respective institutions.

In view of the rapidly enlarging program in graduate medical education, the school of medicine will find itself leaning more heavily on the graduate schools of our universities. The utmost caution is here indicated. On the one hand, the graduate school if it is to serve a real function as a promotional agency, can never forget that graduate medical education has not foresworn the objectives of all medical education and that graduate medical education must contemplate the more complete development of the practitioner in a specialized field of medicine. On the other hand the school of medicine must not and cannot forget that the future development of the specialist depends largely not only on the perfection of medical skills but also on a deepening of medical science. The efforts, therefore of the graduate schools and of the schools of medicine must be mutually cooperative if the end result is not to be lost sight of and if medicine, and all which better medical practice means, is to achieve the function for which it has been organized. Contradictory symptoms with reference to a weakening of the desirable relationships are developing in diverse places. On the one hand we find a progressive formalizing of programs in curriculums for graduate medical education, on the other hand we find a disregard of the art of medicine on the graduate school level and unjustifiable aggrandizement on the part of medical science. On the one hand again we find didactic methods in graduate medical education which would no longer today be tolerated in the more progressive undergraduate schools of medicine and on the other

hand, we find programs which leave the graduate student of a medical specialty so much to his own devices that his efforts at self education are the only efforts which are made and to which the institution contributes little more than the fact that the student has been registered. These contradictions are so serious because in many institutions we are just now passing through the period of origins.

No one can be sure that the graduate medical education of the future will have the same objectives as undergraduate medical education, but at least as a starting point our aim at the present moment, our aim at graduate medical education at least in the clinical sciences and arts is to achieve in a better and more specialized manner what we have previously achieved in a general way through our undergraduate medical curriculum.

Medical education can never be unmindful of the enormous debt of gratitude which it owes to the universities. The universities have been most generous in their support of this particular professional school, mindful of the great purposes which medical education attempts to subserve. A school of medicine cannot support itself on income from students alone. The school of medicine, therefore, must in most institutions depend on the university to supplement the income derived from student fees. Different universities again support their schools of medicine with variable percentages of the total costs of the school of medicine. The financial support which the university gives to the school of medicine is an expression of the university's altruistic attitude toward its clientele, toward its student body and toward the communities which the university serve.

Factual data can be supplied to show that university influence in the school of medicine is not without its dangers. We have been accustomed to thinking of certain departments in the school of medicine, such as the department of biochemistry or of anatomy or of physiology or of bacteriology, even of the clinical departments, for example, pediatrics, internal medicine or surgery, as university departments. If the meaning of the phrase is simply this, that these departments are conceived as divisions of the university in the same sense as are the departments of Latin or of sociology or of physics, the implications may be innocent enough. If, on the other hand, the implication of a university department is that, in these various departments, students of all kinds may assemble and that student body in courses conducted by these departments may be made up of students from diverse professional groups as well as of students from the graduate school or liberal arts college, then there may be and sometimes there is considerable danger in this form of organization to the student of the school of medicine. Into a class composed of students with specific objectives and conducted by such teaching methods as I have suggested, we sometimes introduce students from other divisions of the university, from other professional schools or sometimes students of the liberal arts. I will not deny the possibility that other than medical students can profit by such administrative procedures, but my concern is largely for the diffusion of professional interest which arises from the presence in a class of a large number of other than medical students. Other examples might be chosen to illustrate the point. One might conceivably permit students of medical social service, for example, in a course on psychiatry as given to sophomores or juniors on the assumption that the medical social service student has already achieved to some extent at least an understanding of the medical point of view through a thorough course in medical essentials and especially through exposure to field work in a hospital or in an outpatient department. But to admit into a class in psychiatry as taught to medical students a group of students from the family welfare field or the child welfare field whose whole approach to a medical problem has been that of a person who regards the health problem as incidental, to allow such students to follow the technical discussions of a complicated case history seems to me to be not only an unwarranted but also an educational indefensible procedure. I am not pleading for the erection of Chinese walls around the departments of our schools of medicine. Nevertheless, in order to place better medicine at the disposal of the nation it seems essential to safeguard the processes of medical education. By all means let us extend the meaning of medical education to other groups than simply our medical students, but when we are instructing medical students and thus prepar-

ing the practitioner of medicine we can scarcely at the same time and by the same methods expect to prepare what I cannot but regard as the lay mind for the understanding of hygiene and health problems. One is an effort in professional education, the other is an effort in popular education, adult education, even though it is followed under the auspices of a graduate school.

### The Functions of the Special Examining Boards

DR WILLARD C. RAFFLEY, New York. The recent advances in the graduate fields would not have been possible except for the phenomenal elevation of medical education in the United States since 1900 through the efforts of the Council on Medical Education and Hospitals, the foundations, the universities, the licensing bodies and private philanthropy. Graduate training has always been a well recognized part of the educational programs of leading medical schools and teaching hospitals. Present plans for the extensive development of such training to meet the need for better rather than more physicians are based largely on the long experience of teaching institutions.

In response to the desire to establish common aims within single specialties, the American Board of Ophthalmology was created in 1916 and the American Board of Otolaryngology in 1924. Other boards were organized and shortly each specialty sought a board of its own. These several developments laid the groundwork for the organization of the Advisory Board for Medical Specialties in 1933. This body was founded by representatives of the different groups of specialists and of the medical schools, hospitals and licensing bodies to coordinate the efforts of the individual boards in securing reasonable uniformity in standards and functions. The action of the House of Delegates of the American Medical Association in the same year arose from recognition of the desirability of central approval of the requirements for training in the clinical specialties.

The programs are moving forward in response to the need in every area of the country of a proper number of specialists who, in addition to a sound basic preparation, are qualified by graduate training, technical skill, judgment and experience to perform the specialized services which some patients require. It is obvious that opportunities for advanced training must be made available because the usual medical course and internship aim to provide a student only with the elementary and introductory principles of medicine. The mass of scientific knowledge and the variety of skills needed in all divisions of practice are far too extensive to be covered satisfactorily in the usual course. No phase of medical service is more important than the further training of all physicians and particularly the identification of those who wish to limit their practice to a specialty.

The primary function of each specialty board is that of promoting adequate training in its own field of practice. In the certification of specialists, each board recognizes the necessity of adapting accepted standards to meet the situation of those doctors already in practice who are partially trained in a special field and also that group of older physicians who are well recognized in their specialty. The latter constitutes the founder groups in the different fields and the former will gradually disappear as the younger graduates complete the more formal type of training which is recognized by the specialty boards as the most desirable. Other considerations include the conversion of many existing facilities into acceptable residencies. Such residencies should provide satisfactory laboratory instruction and the development of a teaching personnel in many hospitals not now engaged in an educational program. Financial aid for such projects will have to be found.

Considerable wisdom and patience must be exercised in reconciling those phases of graduate medicine which are related to the limitation of practice to a single field and those which concern the training and other qualifications of an individual to meet his responsibilities in any given specialty. Fortunately, there is wide recognition of the dangers of setting up watertight, more or less artificial compartments of practice and training. Specialized practice concerns itself with the patient as an entity quite as much as with the particular disease with which one of his organs may at the moment be involved. In discharging their functions, the boards are trying to avoid rigid rules and regulations which would even attempt to stand-

ardize practice in the different fields. They recognize that the program of graduate medicine is one of education broadly conceived and that their requirements must be kept flexible.

The unit of true education is the student, who should be given every opportunity for the development of initiative, self reliance, resourcefulness, and proper habits as well as methods of study. The plans for graduate medicine and for recognizing properly qualified specialists must be closely articulated with parallel educational programs for the general or family physician, who must provide the basic professional services in every community.

The boards must of necessity have close working relationships with hospitals, in which most of the graduate preparation must be provided. A function of the boards is to make clear to hospitals and the profession that the internship should be looked on as a part of the basic training of a student and that it should not be regarded as advanced equipment for the practice of a specialty. The boards must function in close relationship to the licensing bodies in the different states. There is abundant evidence that the functions of the boards of specialists are only a part of the larger plan of medical education. It is highly important that these functions be harmonized with the developments and needs of the other parts of the educational scheme. The premedical student, the medical student, the intern, the resident, the general practitioner, the specialist, the teacher, the investigator and the public health administrator should be regarded from an educational point of view merely as different phases of the training of personnel to meet the health needs of the country. The problems from college preparation to retirement from professional life should be looked on broadly as parts of a single educational program. Some of these parts are primarily within the jurisdiction of universities, some are largely within the domain of the hospitals, others are in the various fields of practice, and some are under direct governmental regulations.

There is urgent need for coordination of the various subdivisions of medical education and for better definition of the several areas of responsibility of national and state agencies, universities, hospitals and professional bodies dealing with portions of the whole program, if medicine in this country is to meet fully its obligations.

#### DISCUSSION

DR WALTER L. BIERRING, Des Moines, Iowa. I wish to relate my remarks to the paper of Dr Rappleye, who has brought out the relation between the training of the specialist and graduate education. There is no doubt that the time which will be required for this specialized training will vary and will be determined more in the years to come. There is a feeling that specialized practice should not be entered until at least ten years has transpired from the time of graduation or the completion of a hospital intern year. Special training belongs in the field of graduate education, but it is hoped that in standardizing or in outlining a course of study it may not be strictly confined to a certain quota of hours or specific curriculum, but that there may be even more elective privileges than are now being developed in undergraduate curriculums. It has been the experience of one of the examining boards or the method that has been devised by them, that of internal medicine, of not in any way particularly indicating the institution or the course of study but depending largely on the individual himself, placing the responsibility of the training on the individual concerned, whether it is in this country or in a foreign country, in a small or a large institution, that is his responsibility. The determination of the qualifications of the individual for the specialty he wishes to practice lies entirely with the particular certifying board. It is the responsibility of the board to determine whether that training is adequate for his being certified in that specialty.

DR BURT R. SHURL, Detroit. With an experience of fourteen years on a special examining board during which we have examined more than 2,500 men and the number of failures has been some 20 per cent, and as one particularly interested in originating the Advisory Board for Medical Specialties, it seems to me it is time to lay out a definite program that will have to it a vision and a far-reaching plan throughout this country to furnish sufficient opportunity in graduate training

for these various specialties. I have felt through these years that the pendulum has been swinging so rapidly in medicine that we err many times in our enthusiasm by being carried away into a field that becomes much too limited. The spirit of liberalism in education must come back, so that we recognize the true value of basic general surgery and general internal medicine. While we have these numerous societies and numerous boards and numerous governmental controls, it seems to me that some of those should be eliminated. In Wayne University we have developed a course for all interns in all hospitals of the city of Detroit, where they may have a splendid course in anatomy and pathology, which we find are the two weak subjects as these men come up before us for examination. While we have in otolaryngology only 150 vacancies throughout the year, there are still inadequate training grounds for those men, and that certainly must be developed in each of these special boards.

(To be continued)

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

- ALABAMA. Montgomery, June 28. Sec. Dr. J. N. Baker. 519 Dexter Ave. Montgomery.
- ARIZONA. Phoenix, April 5-6. Sec. Dr. J. H. Patterson. 826 Security Bldg. Phoenix.
- ARKANSAS. *Basic Science*. Little Rock, June 4. Sec. Mr. Louis F. Gebauer. 701 Main St., Little Rock. *Medical (Regular)*. Little Rock, June 21-22. Sec. State Medical Board of the Arkansas Medical Society. Dr. L. J. Kosminsky. Texarkana. *Medical (Elective)*. Little Rock, June 21. Sec. Dr. Clarence H. Young. 1415 Main St., Little Rock.
- CALIFORNIA. *Reciprocity*. San Francisco, May 11, Los Angeles, July 11, San Francisco, Sept. 14, and Los Angeles, Nov. 16. *Written examinations*. San Francisco, June 27-30, Los Angeles, July 11-14, and Sacramento, Oct. 17-20. Sec. Dr. Charles B. Pinkham. 420 State Office Bldg. Sacramento.
- COLORADO. Denver, April 6-8. Sec. Dr. Harvey W. Snyder. 831 Republic Bldg., Denver.
- CONNECTICUT. *Basic Science*. New Haven, June 11. *Prerequisite to license examination*. Address: State Board of Healing Arts. 1895 Yale Station, New Haven.
- DELAWARE. Dover, July 12-14. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel. 229 S. State St., Dover.
- DISTRICT OF COLUMBIA. *Basic Science*. Washington, June 27-28. *Medical*. Washington, July 11-12. Asst. Sec. Commission on Licensure, Mr. Paul Foley, 203 District Bldg., Washington.
- FLORIDA. Jacksonville, June 13-14. Sec. Dr. William M. Rowlett. Box 786, Tampa.
- GEORGIA. Atlanta, June. Joint Sec., State Examining Boards, Mr. R. C. Coleman. 111 State Capitol, Atlanta.
- HAWAII. Honolulu, April 11-14. Sec. Dr. James A. Morgan, 48 Alexander Young Bldg., Honolulu.
- IDaho. Boise, April 5-6. Commissioner of Law Enforcement, Hon. J. L. Balderston. 205 State Capitol Bldg., Boise.
- ILLINOIS. Chicago, April 5-7, June 28, July 1, and Oct. 18-20. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.
- INDIANA. Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination, Dr. J. W. Bowers. 301 State House, Indianapolis.
- KANSAS. Kansas City, June 7-8. Sec. Board of Medical Registration and Examination, Dr. J. F. Hassig. 905 N. 7th St., Kansas City.
- KENTUCKY. Louisville, June 8-10. Sec. State Board of Health, Dr. A. T. McCormack. 620 S. 3rd St., Louisville.
- MARYLAND. *Medical (Regular)*. Baltimore, June 21-24. Sec. Dr. John T. O'Mara. 1215 Cathedral St., Baltimore. *Medical (Homoeopathic)*. Baltimore, June 21-22. Sec. Dr. John A. Evans. 612 W. 40th St., Baltimore.
- MICHIGAN. Ann Arbor and Detroit, June 13-15. Sec. Board of Registration in Medicine, Dr. J. Earl McIntyre. 202-3-4 Hollister Bldg., Lansing.
- MINNESOTA. *Basic Science*. Minneapolis, April 5-6. Sec. Dr. J. Charney McKinley. 126 Millard Hall, University of Minnesota. Minneapolis. *Medical*. Minneapolis, April 19-21. Sec. Dr. Julian F. Du Bois. 350 St. Peter St., St. Paul.
- MISSISSIPPI. Jackson, June. Asst. Sec. State Board of Health, Dr. R. N. Whitfield, Jackson.
- MONTANA. Helena, April 5-6. Sec. Dr. S. A. Cooney. 205 Pover Block, Helena.
- NEBRASKA. *Basic Science*. Omaha, May 3-4. Dir. Bureau of Examining Boards, Mrs. Carl Perkins. State House, Lincoln.
- NEVADA. Carson City, May 2. Sec. Dr. John E. Worden. Capitol Bldg., Carson City.
- NEW JERSEY. Trenton, June 21-22. Sec. Dr. James J. McGuire. 24 W. State St., Trenton.
- NEW MEXICO. Santa Fe, April 11-12. Sec. Dr. Le Grand Ward. 133 Sena Plaza, Santa Fe.
- NEW YORK. Albany, Buffalo, New York, and Syracuse, June 27-30, and Sept. 19-22. Chief Professional Examinations Bureau, Mr. Herbert J. Hamilton. 315 Education Bldg., Albany.
- NORTH CAROLINA. Raleigh, June 13. Sec. Dr. B. J. Lavren. 503 Professional Bldg., Raleigh.

**NORTH DAKOTA** Grand Forks July 5 8 Sec Dr G M Williamson  
4½ S 3rd St Grand Forks

**OKLAHOMA** *Basic Science* Oklahoma City May 4 Sec of State  
Hon Frank C Carter State Capitol Bldg Oklahoma City *Medical*  
Oklahoma City June 8 9 Sec Dr James D Osborn Jr Frederick

**OREGON** *Basic Science* Corvallis July 16 and Portland Nov 19  
Sec State Board of Higher Education Mr Charles D Byrne University  
of Oregon Eugene *Medical Reciprocity* Portland April 6 Sec Dr  
Joseph F Wood 509 Selling Bldg, Portland

**PENNSYLVANIA** Philadelphia and Pittsburgh July Sec Board of  
Medical Education and Licensure Dr James A Newpher 400 Education  
Bldg Harrisburg

**RHODE ISLAND** Providence April 7 8 Chief Division of Examiners,  
Mr Robert D Wholey 366 State Office Bldg Providence

**SOUTH CAROLINA** Columbia June 28 Sec Dr A Earle Boozer  
505 Saluda Ave Columbia

**SOUTH DAKOTA** July 19 20 Director of Medical Licensure Dr B A  
Dyar State Board of Health Pierre

**TEXAS** San Antonio June 20 22 Sec, Dr T J Crowe 918 Mer  
cantile Bldg Dallas

**VERMONT** Burlington June 15 17 Sec Board of Medical Registra-  
tion Dr W Scott Nay Underhill

**VIRGINIA** Richmond June 22 24 Sec Dr J W Preston 30½  
Franklin Road Roanoke

**WISCONSIN** Milwaukee June 28 July 1 Sec Dr Henry J Gram  
ling 2203 S Layton Blvd Milwaukee

**WYOMING** Cheyenne June Sec Dr G M Anderson Capitol Bldg,  
Cheyenne

#### NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the *National Board of Medical Examiners and Special  
Boards* were published in THE JOURNAL March 26, page 1060

#### Mississippi Reciprocity Report

Dr R N Whitfield, assistant secretary, Mississippi State  
Board of Health, reports 8 physicians licensed by reciprocity  
at the meeting held in Jackson, Dec 8, 1937 The following  
schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Hahnemann Medical College and Hospital Chicago	(1907)	(1907)	Illinois
Tulane University of Louisiana School of Medicine	(1936)	(1936)	Louisiana
Tufts College Medical School	(1930)	(1930)	Mass
Creighton University School of Medicine	(1927)	(1927)	Nebraska
Jefferson Medical College of Philadelphia	(1898)	(1898)	R Island
University of Tennessee College of Medicine	(1935)	(1935)	Tennessee

#### Indiana Reciprocity and Endorsement Report

Dr J W Bowers, secretary, Indiana State Board of Medical  
Registration and Examination, reports 54 physicians licensed by  
reciprocity and three physicians licensed by endorsement dur-  
ing 1937 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Arkansas School of Medicine	(1933)	(1935 2)	Arkansas
Stanford University School of Medicine	(1936)	(1936)	California
University of Colorado School of Medicine	(1934)	(1934)	Maryland
Howard University College of Medicine	(1935)	(1935)	Missouri
Emory University School of Medicine	(1931)	(1935)	Georgia
Chicago College of Medicine and Surgery	(1911)	(1912)	Illinois
Loyola University School of Medicine	(1928)	(1931)	Illinois
Northwestern University Medical School	(1929)	(1935)	Illinois
Rush Medical College	(1933)	(1934)	Illinois
School of Medicine of the Division of the Biological Sciences	(1936 2)	(1936)	Illinois
University of Illinois College of Medicine	(1916)	(1916)	Illinois
Indiana University School of Medicine	(1928)	(1928)	Penna
University of Kansas School of Medicine	(1932)	(1932)	Kansas
University of Louisville School of Medicine	(1924)	(1924)	
(1933) (1935 3) Kentucky			
Tulane University of Louisiana School of Medicine	(1919)	(1919)	Louisiana
University of Maryland School of Medicine and College of Physicians and Surgeons	(1932)	(1932)	Maryland
University of Michigan Medical School	(1925)	(1930)	
(1931) (1932) Michigan			
St Louis University School of Medicine	(1934)	(1934)	Missouri
Washington University School of Medicine	(1934)	(1935 2)	Missouri
Ohio State University College of Medicine	(1935 2)	(1935 2)	Ohio
Western Reserve Univ School of Medicine	(1934)	(1936)	Ohio
Temple University School of Medicine	(1927)	(1927)	Penna
University of Pennsylvania School of Medicine	(1928)	(1928)	Wisconsin
(1930) Pennsylvania			
University of Pittsburgh School of Medicine	(1928)	(1932)	Penna
Meharry Medical College	(1936)	(1936)	Tennessee
University of Tennessee College of Medicine	(1934)	(1934)	Tennessee
Marquette University School of Medicine	(1936)	(1936)	Wisconsin
(1917) Michigan			
Friedrich Wilhelms Universität Medizinische Fakultät Berlin	(1933)	(1933)	Illinois
Magyar Királyi Pazmany Petrus Tudományegyetem Orvosi Fakultása Budapest	(1923)	(1923)	Illinois
School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Colorado School of Medicine	(1934)	(1934)	N B M Ex
Rush Medical College	(1928)	(1928)	N B M Ex
Washington University School of Medicine	(1930)	(1930)	N B M Ex

## Book Notices

**Pathology of the Central Nervous System A Study Based upon a  
Survey of Lesions Found in a Series of Fifteen Thousand Autopsies** By  
Cyril B Courville M D Professor of Neurology and Psychiatry College  
of Medical Evangelists Los Angeles Cloth Price \$5 75 Pp 344 with  
200 Illustrations Mountain View California Pacific Press Publishing  
Association 1937

The present volume is an excellent work devoted mainly to  
the gross pathology of the brain and the nervous system The  
author has studied fifteen thousand brains and spinal cords  
post mortem, twelve thousand of which came under his per-  
sonal observation From this vast amount of material he has  
organized a textbook which covers thoroughly the innumerable  
descriptive phases of his cases The work follows, in general,  
classifications set up clinically Part one is devoted to con-  
genital anomalies and malformations, part two to diseases of  
the intracranial blood vessels, part three to infectious diseases  
of the central nervous system, part four to the effects of  
trauma, part five to intoxications, part six to diseases of  
unknown etiology and part seven to tumors of the intracranial  
and intraspinal spaces Little case history material is given  
on individual cases and the microscopic details are largely left  
for some one else's discussion, but each one of the major  
pathologic conditions found in the brain and spinal cord—the  
former in particular—is covered in some detail, particularly in  
relation to the gross appearance and the circumstances of  
causation In spite of the vast amount of case material studied,  
statistical information about anomalies, peculiar variations,  
numbers of cases of rare entities and other rather obscure  
phases are not treated very thoroughly, but nevertheless the  
material in the book does not seem to be duplicated elsewhere  
in the specific form in which it appears here For each con-  
dition one finds one or more excellent photographic reproduc-  
tions showing the exact appearance of the organ and, in some  
cases, showing the gross tissue changes A number of beauti-  
fully executed drawings illustrate the clinical point under dis-  
cussion and anatomic features in connection with the pathologic  
entities, but the text does not devote itself very much to  
clinical observations, physiology or obscure disorders *Special*  
attention must be drawn to the appendix, in which the author  
lists a number of clinicopathologic aphorisms which seem to  
be, on the whole, true and are rather pithily presented Many  
of them direct the student's attention to obscure pathologic  
conditions that might be neglected Others offer general rules  
which might well be remembered in all cases dealing with  
disorders of the nervous system This book is well written,  
has been carefully edited, and would satisfy a need for both  
the neuropathologist and the clinical neurologist who desires  
something between the general clinical neurologic textbook and  
the usual microneuropathologic work

**La vie médicale aux XVI<sup>e</sup> XVII<sup>e</sup> et XVIII<sup>e</sup> siècles** Par le Docteur  
Paul Delaunay membre de la Société française d'histoire de la médecine  
Paper Price 40 francs Pp 556 with 114 illustrations Paris Le  
François 1935

Professor Delaunay's *Vie médicale* is a splendid addition to  
this series in the historical field It is limited in its scope to  
French medicine and excludes surgery because of the medieval  
schism between medicine and surgery, which continued in  
France, though not in Italy, when the physician became a  
medicus The work treats of the life of the medical student  
and of the private, professional, corporative, religious, political,  
social, intellectual and doctrinal life of the full fledged and  
active *medecin* The text is amply documented with citations  
of authorities and finely illustrated with well selected reproduc-  
tions from contemporary prints, portraits, engravings and paint-  
ings It thus affords a detailed and accurate picture of the  
preparation and professional activities of the physician in  
France and his wide cultural relations from the opening of the  
sixteenth century up to the close of the eighteenth The Faculty  
of Medicine was established at Montpellier in 1220 A D, giving  
stability, continuity, wider influence and permanent privileges  
to medical education A federation of teachers under the egis  
of the chancellor of Notre Dame opened formal instruction in  
Paris Chairs of medicine multiplied as the universities were  
organized in the thirteenth to the sixteenth centuries until

students had a wide field from which to choose. It was the custom for medical students to migrate from school to school even across national boundaries. Vesalius began his studies in Belgium, went to Montpellier and to Paris, reentered Louvain, took his bonnet at Basle, and taught at Padua. This academic dromomania had its origin in the international character of learning, the inequalities in instruction, the transfers of teachers and the wanderlust of youth. Religious turmoil accompanying the Reformation scattered pupils and teachers, and the epidemics of plague repeatedly decimated and scattered both students and faculties. At Montpellier in 1527 the students were taxed at the "anatomy" for gratuities to the watchman who brought the body, to his wife who furnished the linen, to porters, washers, interpreter, prosector, beadle and janitress and her children who ran errands, to say nothing of charges for wine, for washing, vessels for viscera, incense, fuel and candles. Library facilities were meager. In 1527 Montpellier had fifty volumes. Books were chained to keep them and fees were charged for their use. Catalogues emerged to prevent losses. Herborizations took students afield and tickets admitted them to botanic gardens of medicinal herbs. The family life of the physician, his office, furniture, library, costume, bedside manners, remuneration, professional ethics, relations with apothecaries, patients, the nobility and the court are all passed in review. The author reviews the contributions of the profession to the intellectual life of these three centuries, tracing the decline of humanism, their contributions to anatomy, physiology, botany, zoology, physics and agriculture, their share in the formation of academies and learned societies, and their aid in forwarding scientific publication and establishing high standards of scientific work. He traces the changes in medical doctrine from wreckage of the galenic school to the organized knowledge of the encyclopedists. This scholarly treatise is an epitome of the history of medicine in the formative centuries during which the arts and science of medicine emerged from scholasticism, superstition and charlatanism into the clearer light of the dawning modern period.

**Operative Obstetrics. A Guide to the Difficulties and Complications of Obstetric Practice.** By J. M. Munro Kerr LL.D. M.D. F.R.C.O.G. Obstetric Surgeon Glasgow, Maternity Hospital Glasgow. Fourth edition. With the assistance of Donald McIntyre M.D. F.R.C.O.G. Consulting Obstetric Surgeon Barshaw Maternity Hospital Glasgow and D. Fyfe Anderson M.D. Senior Assistant to Professor of Obstetrics and Gynecology (Vulvar Chair) Glasgow University. Cloth. Price \$12. Pp. 647 with 338 illustrations. Baltimore: William Wood & Company 1937.

The fourth edition of this noted work, previously entitled "Operative Midwifery," has been brought down to date by thorough revision and rewriting. In this task Dr. Kerr acknowledges the assistance rendered by Donald McIntyre and D. Fyfe Anderson, who have collaborated with him in this new edition. The book is unique in that it deals only with those phases of obstetric practice which require operative intervention. Other abnormalities, such as toxemias of pregnancy and, logically, the normal aspects of obstetrics, are completely omitted. Kerr calls attention to the fact that in England, as in America, maternal and fetal mortality and morbidity are unnecessarily high, emphasizing that the knowledge of when and how to intervene is of paramount importance. His opening paragraph is an essay in itself.

Nature in parturition although generally following a certain course refuses to be trammelled by hard and fast rules. It is important for the accoucheur to remember this and to appreciate within what limits Nature may be allowed a free hand. The mistake is too often made of forcing this and of interfering when with a little patience, it would have been unnecessary. But if it is of importance that the accoucheur should appreciate the natural variations of parturition, it is equally important that he should recognize when nature is at fault and that he should do this as early as possible. He must never presume that a parturition is normal. He must not be content until he has satisfied himself that it is not abnormal. Again and again one sees how failure in this respect results in complications being overlooked until they cannot be remedied and the child's and even occasionally the mother's life sacrificed or greatly endangered. This does not imply that he must always interfere early in labour in many cases of dystocia. Timing of interference is the all important detail.

In general there is little but still some difference between obstetric practice in this country and that advocated by Kerr. He discusses the importance of antepartum care even though it has not yet succeeded in materially lowering the death rate, saying it has not had a "fair deal." He speaks of a complete

examination in the thirty-fourth to thirty-sixth week to discover abnormalities and to anticipate dystocia. By this he does not mean to indicate that no earlier routine care is necessary though he fails to specify this. From his writings and those of other English obstetricians it often seems to appear that the pregnant women in England have not been generally taught to present themselves for antepartum care as early in pregnancy as do the women in this country.

American obstetricians will probably disagree with Kerr's advocacy of amniography, or the injection of an opaque medium through the abdominal and uterine walls into the uterine cavity for the purpose of x-ray visualization. This is proposed by him for diagnosis of placenta praevia in doubtful instances. He finds it necessary still to argue for the use of rubber gloves, he urges more general masking of attendants on patients in labor and during the early puerperium he favors the use of vaginal antiseptics during labor, unlike many British obstetricians, he prefers the dorsal position for delivery. Kerr utilizes the lateral type of episiotomy on occasion but considers episiotomy "seldom necessary." These various points of view, with others, are cited because they cannot fail to be of interest to those of us on this continent who will wish to compare our procedures with his.

He favors traction on the umbilical cord for delivery of the retained but detached placenta, making certain, however, by placing a marker on the cord at the vulva that the placenta has first become detached. This marker must have advanced before he permits traction, but when advancement has occurred he favors this in preference to any considerable amount of pressure over the fundus. He does not approve of attempts at manual or instrumental rotation in occipitoposterior presentations. While he still advocates the use of pubiotomy (hebotomy) under certain circumstances, he fails to recommend it in impacted face presentation with the chin posterior, stating that in this situation there "is no option but craniotomy even if the child be living." He favors forceps delivery of the after-coming head in breech deliveries, he cautions wisely against the dangers of Kristeller expression during ordinary deliveries.

The chapter on contracted pelvis is excellent, the old dimensional classification being retained but with generous reference to the work of Caldwell and Moloy, Thoms, and Jarchio. He appreciates the value of the x-rays in the diagnosis of contracted pelvis but, like the experienced obstetrician that he is, states that trial of labor is more important in borderline cases. The various roentgenograms in the book are splendidly clear, but the other illustrations are for the most part simple line drawings, not at all comparable to the excellence of the text. The book is not firmly or securely bound but the paper and printing are of fine quality. This volume should be especially helpful to the obstetric specialist and of great value to the practitioner doing obstetric work.

**Innere Sekretion und Chirurgie.** Von Hans Franke Dr. med. habil. Dozent für Chirurgie an der Universität Freiburg im Breisgau. Paper. Price 24 marks. Pp. 326 with 18 illustrations. Berlin: Julius Springer 1937.

The study of internal secretions appears to hold out as great a promise for medicine as did bacteriology sixty years ago. The acquisitions to medical knowledge which have come through investigation of the glands of internal secretion have been numerous. It may seem a bit odd that a surgeon would essay to encompass this somewhat strange field in a monograph. Yet as the author points out the surgeon was among the first of medical practitioners to concern himself over endocrinology. Through the first unhappy experiences of surgeons with the removal of goiters, much was learned concerning the behavior of the thyroid and parathyroid glands. The continued activity of surgeons in the romantic field of the endocrines has augmented medical knowledge with relation to the pituitary, the parathyroid, the pancreas and the adrenal glands. In this sound and substantial monograph the author has collected much useful information. The subject matter treated consists of the thyroid, the parathyroids, the thymus, the insular apparatus of the pancreas, the adrenal, the hypophysis, the pineal body and the sex glands. The important features of minute anatomy of the various glands are related. Then follows generally a complete discussion of the accepted and debatable physiologic functions



together with mention of the relation of the gland under discussion to other glands of internal secretion. A discussion of diseases affecting the gland and the role of surgery in treatment completes each chapter. A few more well selected illustrations would have added much to the text. The author shares apparently the attitude, heard more commonly in Europe than on the American continent, that the presence of a goiter sensitizes a patient to iodine. American students of the goiter problem will no doubt attribute this reaction in part to a prejudice which still survives from the so called Jod-Basedow (iodine hyperthyroidism) described by Kocher in 1910. It seems somewhat strange to learn (p. 206) that only two patients with hyperinsulinism had been operated on successfully in Germany up to the publication of this monograph. The author, though recognizing the relationship of the hypophysis to the normal descent of the testis, is not nearly as enthusiastic over the accomplishment of antuitrin-S in the treatment of failure of testicular descent as are many American writers. Much encouragement for the success of hypophysis transplants is offered in the reports of Sauerbruch and Kryn (p. 277), who observed startling improvement in Simmonds' disease (hypophysial cachexia) following implantation of hypophysial tissue from the calf. The results of other glandular transplantation, whether heterografts or homografts, are not good, as is admitted by the author. This splendid monograph deserves to be read and studied widely. There is much to commend and little to criticize in the volume. It can be enthusiastically recommended not only to surgeons but to any one who seeks authoritative information on the physiologic mechanisms of the glands of internal secretion.

**Mental Therapy Studies in Fifty Cases.** By Louis S. London, M.D., Medical Officer, United States Veterans Bureau. Volumes I and II. Cloth. Price \$12.50 per set. Pp. 427, 428, 774 with 22 illustrations. New York: Coriel Friele, 1937.

This is a rather extensive psychoanalytic work consisting of analyses of fifty individual cases, the majority of which were treated by the author and all of which were studied in his practice. The author scarcely can be considered an orthodox psychoanalyst. While many of his explanations fall definitely under the Freudian egos, he does not use, as a general rule, the technique of Freudian psychoanalysis. Instead, he uses the method developed by Stekel, which consists of a greater use of interpretation of and explaining to the subject the basis of his mechanisms rather than allowing him to come on it of his own accord by the use of uncontrolled association. While the basic theories behind the two types of psychoanalysis are almost identical, the explanation of the mechanism in some of London's cases would probably not elicit a hearty corroboration from the orthodox analyst. Nevertheless, there is in this volume much material that is interesting. Each case is presented in some detail, although not as completely as one usually finds in a study of psychoanalytic material. Each case, too, is designed to represent the particular type of deviation, such as a cardiac neurosis, a gastric neurosis, an anxiety neurosis, sexual impotence, sadism, masochism, schizophrenia or manic-depressive psychosis of various types. The author's descriptions of the psychotic behavior and the everyday life of the neurotic individual are meager. Much stress is laid on the symptomatic difficulties and the chief complaint. A history is given in each case showing the background, the medical observations, relationship to the parents, early sexual history and some dream material which would tend to explain the dynamism involved in the particular deviation. Each case is concluded with a comment which is rather too terse to be completely significant. The cases unfortunately are not clear cut. The psychiatrist who wishes to enlarge his horizon and to understand the dynamics of behavior to a greater extent will be sadly disappointed in the present work. While certain dynamisms are mentioned by name, and dreams may be interpreted to point out the associational machinery involved and possibly the complex material lying behind them, one cannot see the logical connections between the material and its evaluation. This is particularly true in the volume which deals with the psychoses. One is not convinced that the patients were suffering from a psychosis in the first place, and in those cases in which there seems to have been a favorable result from the author's treatment the manner in which it was brought about is not at all clear. As a matter of fact, although the

author implies and of course the title indicates that the book is to be devoted to the therapeutic aspects of the cases, the only treatment apparent from the way these cases are written up is the fact that an analysis was undertaken, the dreams were analyzed, and the patient was given some insight into his mechanisms. How these were carried out is not described. There should be a detailed explanation of what techniques were used, at what time, what particular features were stressed, how exactly insight was brought to the patient, and what the results of the various stages of treatment proved themselves to be as the case proceeded under the author's care. There is a great deal of dogma and little explanation. As a gesture to indicate that treatment is necessary in psychiatry and as a suggestion that conditions of widely diverse nature might be subjected to various kinds of treatment, the book has value. As a guide to treatment for the use of psychologist, neurologist, psychiatrist, and the general practitioner, who will find the cases presented of decided value in their practice, its importance is doubtful.

**Emotional Hygiene: The Art of Understanding.** By Camilla M. Anderson, A.B., M.D., Assistant Professor of Nursing Education, Duquesne University, Pittsburgh. Cloth. Price \$2. Pp. 242 with illustrations by Dorothy G. Stevenson. New York & London: J. B. Lippincott Company, 1937.

The rather popular presentation of this book with its subtitle "The Art of Understanding" makes one suspect that this is another one of those superficial works devoted to telling a patient how to cure himself without a doctor or how to adjust all the problems in his life. On reading it, however, one immediately notes that the language is extremely easy to comprehend and it proves to be a small but substantial volume full of excellent factual material which well deserves perusal. It consists of three parts. The first one is devoted to a rather general and perhaps superficial presentation of mental mechanisms, with a simple explanation of behavior and a description of personality types, emotional patterns, escape mechanisms and similar features in the biologic and other bases of the behavior pattern. This part is short and rather generalized but accurate. The second part is devoted to specific discussions of how to meet problems arising from personal problems, in dealing with patients, relatives, colleagues and the environment in general. The third part is a discussion of various phases of nursing, leading one to believe that the book is primarily intended for nurses, since the author is an instructor in nursing education. The introduction does not make this clear, although the style is pointed definitely in the feminine reader group. There are many chuckles and pertinent illustrations, both verbal and pictorial, and practical cases are taken up and discussed in an intelligent manner. This is one of the few books on mental hygiene sufficiently well written and widely enough applicable so that it might be given to the interested reader without medical training who requests a book on this subject.

**Radiation Therapy: Its Use in the Treatment of Benign and Malignant Conditions.** By Ira I. Kaplan, B.Sc., M.D., Clinical Professor of Surgery, New York University Medical College. Cloth. Price \$10. Pp. 558 with 198 illustrations. New York: Oxford University Press, 1937.

The volume opens with a short survey of the historical development of radiation therapy, including radium and x-rays, the physics of x-rays and radium, descriptions of types of apparatus for the production of x-rays and their measurement, and the use of electric currents as a substitute for scalpel surgery in cutting and coagulating tissues. There then follows a chapter on irradiation in dermatology which includes the treatment of infectious diseases of the skin and of superficial neoplasms. The remainder of the volume deals with the irradiation of tumors, the classification being based on a regional arrangement, the tumors in each organ or tissue being taken up separately. Extensive bibliographies are attached to each chapter and the different types of tumors in different situations are copiously illustrated with photographic reproductions of the patients and photomicrographs of the tumors.

The volume contains an immense amount of useful information in compact form, but in the effort to cover the vast field a dogmatic type of presentation has been assumed which would lead the reader to think that radiation therapy has a far greater value than it really possesses and that it can be put on a prescription basis. There is a great deal of repetition in which

it is definitely stated that the radiation should be given at such and such a voltage with such and such filtration, which might lead the uninitiated to believe that all that is necessary is to apply this radiation in order to get good results. There is already too much of this routine application of x-rays to a vast number of conditions in which little or no benefit is actually obtained by such irradiation and therefore the book is dangerous for the beginner, who may be led to think that he can obtain results which the expert knows are rarely seen. It would have been much wiser had the volume covered less ground and the limited fields in which radium and x-rays are effective considered in greater detail.

There are also evidences on almost every page of haste in preparation, and numerous misspellings have been found, with misprints and the use of incorrect expressions. As an illustration of the latter, it may be a comfort to know that "females are rarely involved with lip cancer," and the phrase might well have been omitted as not illuminating the subject of cancer of the lip to any extent. An example of excessive optimism is the statement that nausea or vomiting occurring after x-ray treatments can be controlled by citric acid fruit juices or small doses of sodium bicarbonate. The author knows perfectly well, for he mentions the fact in another place, that in a certain proportion of cases nothing controls the nausea or vomiting and that treatment may have to be abandoned because of this fact. Speaking of melanomas, the author says that when metastatic lesions of the lung are present the whole chest is treated with high voltage x-rays, daily doses of 150 roentgens being given to each area alternately until a total of from 1,500 to 2,000 roentgens has been given to each area. The beginner may assume from such a statement that such irradiation is of benefit, but unfortunately the reverse is true. Speaking of mixed tumors of the salivary glands the statement is made that they do not metastasize, that the "gland" must be completely excised and that as soon as the wound is healed radiation should be administered. There are some who think that, since these tumors frequently recur locally, the tissues should not be damaged by radiation of 2,000 roentgens as recommended but should be reserved for further surgical treatment, which is often effective.

Perhaps these criticisms seem unimportant, but there is no satisfactory modern book on the subject of radiation therapy, and it is to be hoped that a prompt and thorough revision of this text along the lines indicated will be made so that the author's wide experience and judgment may be available to the large number of radiotherapists who are attempting with insufficient experience to treat patients with malignant disease for whom radiation is the only hope.

**Porphyria und Porphyrikrankheiten.** Von Priv. Doz. Dr. A. Vannotti, Sekundärarzt der Medizin Universitätsklinik, Bern. Paper. Price 27 marks. Pp. 286 with 64 illustrations. Berlin: Julius Springer, 1937.

It is probable that the total occurrence of cases of true porphyria congenita in Europe and the United States since Guntli's paper in 1911 is less than the number of papers that have been written on the subject. In the last decade however, it has been gradually recognized that the porphyrias are of more significance to medicine than association with some pathologic curiosities. Porphyrias are fundamental components of the hemoglobins and at least some of the oxidation catalysts (cytochrome C) as well as of the chlorophylls. The brilliant chemical studies of Hans Fischer and the spectroscopic work of Dhérive have not escaped the attention of clinical investigators, especially in Germany, who are studying porphyrimetabolism in a wide variety of conditions. Reviews on the clinical significance of the porphyrias have been published recently by I. T. Brugsch (*Ergebnisse d. ges. Med.* 20: 423, 1935; *Ergebnisse d. inn. Med. u. Kinderh.* 51: 86, 1936). The present book by Vannotti covers clinical questions in detail in addition to voluminous literature on spectroscopy of the porphyrias, the results of experimental administration of porphyrias to both animals and man, the relation between porphyrias and iron metabolism and general studies on porphyrias in plants, animals and bacterial cultures. The chief criticism of Vannotti's book is on the score of omission. One could wish for a more thorough treatment of the chemistry of the several porphyrias, as this is fundamental to an understanding of the clinical ques-

tions. The omission of a detailed discussion of the "Hofmann number" and differential solubilities of the porphyrias will be regretted by investigators who are concerned with separation and quantitative estimation of the various porphyrias in biologic materials. The nine page section on methods for estimation of the porphyrias is only a brief introduction to these complicated questions. Vannotti repeats the familiar dictum about the role of porphyrias in photosensitization, but it should be mentioned that recent studies by Blum and Pace (*Brit. J. Dermat. & Syph.* 49: 465 [Nov.] 1937) fail to confirm any general relation of porphyrias to hydroa and similar lesions resulting from light sensitivity. Studies on patients at the Mayo Clinic in 1936-1937 by Brugsch, Keys and Brunsting yielded the result that light sensitivity did not occur in any of the observed cases of moderate porphyria and that in none of the observed cases of light sensitivity was there any appreciable disturbance in porphyrin metabolism. Vannotti's book is well organized and shows, in the discussions, the understanding that comes only from having personal experience in a field of study for some years. The book should be useful to all who are interested in pigments and their metabolism, it will be indispensable to students of the porphyrias. It is unfortunate that there is as yet no work in English of comparable scope.

**The Management of the Pneumonias for Physicians and Medical Students.** By Jesse G. M. Bullowa, B.A., M.D., Clinical Professor of Medicine, New York University College of Medicine, New York. Cloth. Price \$8.50. Pp. 508 with 142 illustrations. New York: Oxford University Press, 1937.

Dr. Bullowa's book includes almost all phases of pneumonia except pathology. He begins with classification of the pneumonias and then gives an account of the clinical picture, the laboratory, physical and x-ray examination and the various forms of treatment. The data which he presents are drawn largely from his own extensive clinical experience at the Harlem Hospital. The book is by no means evenly written. The best chapters, those on laboratory examination and serum therapy, are evidently subjects with which he is most competent to deal. Unfortunately the author feels called on to make comments now and then on immune processes in pneumonia, a subject with which he is evidently unfamiliar, as many of his statements are misleading and others have no foundation in known fact. For instance, he states that among the factors which control invasion of the blood stream by the pneumococcus are bacteriolyins in the serum and the pneumococidal action of the blood platelets. Evidence does not exist for either one of these two antipneumococcal activities of the blood. The chapter on oxygen therapy is much too detailed and theoretical for the clinician who wants to know the best method of giving oxygen, its indications and what can be expected from its use. Likewise, many of the charts are too complex. Even after considerable study one is not always sure of their significance. The bibliographies at the end of the chapters give the impression of being thrown together without any order and do not always include the most important contributions to the subject. In spite of its defects the book contains a great deal of valuable information and presents for the first time a collected account of the specific pneumonias caused by the different types of pneumococci I to XXIX. The author's observations on the results of the newly developed antipneumococcus rabbit serum are of particular value in view of the probable availability of this therapeutic agent in the near future.

**The Family in Health and in Illness.** By Florence Brown Sherbon, A.M., M.D., Professor of Child Development and Health of the Family Department of Home Economics, University of Kansas. Cloth. Price \$3.50. Pp. 516 with 200 illustrations. New York & London: McGraw-Hill Book Company, Inc., 1937.

This book, prepared primarily for college students but with the purpose of continued usefulness after graduation is a household manual of health and disease, containing much useful reference material but with certain glaring defects. It attempts too much in some instances, with the result that its treatment of certain topics is inadequate, and it contains statements with which many physicians will disagree. For example the routine use of commercial mouth washes is said to be commended as a routine habit. By whom other than the manufacturers? Sulfanilamide gets a paragraph, this is either too much space

in such a book or too little, especially when it includes the following invitation to self medication "Sulfanilimide is effective when taken by mouth and does not produce marked physical reaction" Descriptions of the uses of procaine, ephedrine and epinephrine in one sentence as drugs which are used "to shrink the congested membranes and open up the breathing passages" are out of place in such a book, even when followed by the warning "Novocain and adrenalin should never be used except by a physician, and ephedrine should not be used continuously or in chronic conditions except under a physician's advice" If that is so, why should they be mentioned here at all, especially in terms which first seem to recommend, then condemn? The only result, as any physician should realize, will be to stimulate attempts at self medication, despite warnings against it appearing elsewhere in the book For the most part the book is serviceable, except that efforts to be brief often make the discussions, especially of the specific diseases, unsatisfactory, as for example this sentence from the description of pernicious anemia "Absence of gastric acid and spinal cord paralysis is usually noted in some degree and is almost a specific symptom" Aside from the faulty sentence construction, which might lead the inexperienced reader to infer that "absence of spinal cord paralysis is almost a specific symptom," whereas the reverse is meant, this information is of absolutely no use to the reader of such a manual, especially when this is almost all there is on symptomatology of this disease Moreover, false hope is held out for prevention of pernicious anemia in the statement that it "consists in pursuing a 'balanced' mode of life especially with reference to a diet containing a full amount of vitamins and minerals" Such questionable passages greatly impair the value of a book that contains much useful information How is the untrained reader going to separate the wheat from the chaff?

**Illustrations of Regional Anatomy** By E B Jamieson M D Senior Demonstrator and Lecturer Anatomy Department University Edinburgh Section I Central Nervous System Section II Head and Neck Section III Abdomen Section IV Pelvis Section V Thorax Second edition Paper Loose leaf Price \$2 50 \$3 50 \$2 25 \$1 50 \$1 75 \$15 per set of 7 sections 48 plates 63 plates 37 plates 33 plates 30 plates Baltimore William Wood & Company 1937

Any work on the subject of anatomy is usually useful These handsome illustrations are no exception Bound in loose-leaf and printed on one side of the paper, they are evidently intended for the student as a guide for his notebook and his dissection The sections under review exclude the limbs but contain more than 200 plates on regional anatomy of the rest of the body The drawings are diagrammatic, many in color Usually they are replete with legend, at times seemingly cluttered No doubt these illustrations can aid in clarifying to the student many anatomic mazes, but the various large textbooks, of the size and quality of Gray's, are cheaper and perhaps still best for the medical student, old and young

**Synopsis of Digestive Diseases** By John L Kantor Ph D M D Associate in Medicine Columbia University New York Fabrikoid Price \$3 50 Pp 302 with 40 illustrations St Louis C V Mosby Company 1937

This pocket size book presents a clear and concise though necessarily abbreviated, account of the field of gastro enterology The book is attractively printed, the style lucid and direct Statistical evidence is drawn from the author's large practice The discussion on treatment is in many cases inadequate However, classic symptomatology is well presented

**Diseases of the Soft Structures of the Teeth and Their Treatment A Text book for Students and Practitioners** By Hermann Prinz A M D D S M D Professor of Materia Medica and Therapeutics the Thomas W Evans Museum and Dental Institute School of Dentistry University of Pennsylvania Philadelphia Second edition Cloth Price \$6 50 Pp 500 with 308 illustrations Philadelphia Lea & Febiger 1937

This deals only with diseases of the pulp, gingivae and periodontal membrane and fits the teaching program in many dental schools This fact and the general excellence of the text account for the popularity of the first edition The section on pulp diseases and root canal treatment is unusually complete and authoritative, the part on pyorrhea is least satisfactory The brief historical reviews are unusually complete and enlightening The text is replete with formulas and prescriptions

where drug treatment is indicated The disease classifications are redundant and in places confusing, as are also disease names Dental students and dentists will find this to be a useful aid in the practice of their art

**Principles of Roentgenological Interpretation** By L R Sante M D Professor of Radiology St Louis University School of Medicine St Louis Missouri Cloth Price \$5 50 Pp 340 with 333 illustrations Ann Arbor Michigan Edwards Brothers Inc 1937

This textbook is printed in typewritten letters, and all the illustrations are given only by schematic drawings, nevertheless it is an excellent book for the beginner as well as for the expert in x-rays It is of greater value to be informed by clear drawings than by poorly reproduced pictures, since there is always a great difference between the original films and the reprints The author classifies the whole of roentgenology in twenty-three chapters At the end of each chapter, questions are given concerning its special content The index is rich Also suggestions are made for collateral reading The textbook is one of the best we have, and it is a good supplement to the author's book on roentgenologic technique

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Right of Trial Court to Order Physical Examination of Plaintiff in Personal Injury Action**—The plaintiff sued the defendant for damages for certain injuries to her mouth, teeth and face allegedly resulting from an automobile collision which admittedly was due to the defendant's negligence At the trial, on the direction of her attorney, she exhibited her injuries to the jury The defendant then requested the court to require the plaintiff to submit to an examination by a dentist to be selected by the court to determine the amount of injury inflicted This the trial court refused to do, stating that it believed that it was without authority to do so From a judgment for the plaintiff, the defendant appealed to the Supreme Court of Oklahoma

In this case, said the Supreme Court, the sole questions for the jury to determine were the nature and extent of the plaintiff's injuries and the amount of damages to be awarded therefor Under these circumstances the exhibition by the plaintiff of the injured portions of her face and mouth could have had but one purpose, namely, to enhance the amount of damages to be awarded by the jury While the courts are in disagreement as to the authority to require a plaintiff to submit to an examination in the first instance, they are in practical unanimity with respect to the rule to be followed when the plaintiff has offered a portion of his body in evidence, holding that then the plaintiff's body becomes an exhibit in the case and that within reasonable limitations the opposite party has a right to make such inspection of it as will enable him to explain, criticize or impeach its value as evidence and to that end have it examined by experts The Supreme Court, holding that the trial court erred in not ordering the examination requested by the defendant, reversed the judgment of the trial court and ordered a new trial—*Jeanel Tea Co v Ransdell (Okla)*, 69 P (2d) 69

**Workmen's Compensation Acts Bell's Palsy a Compensable Injury**—The claimant was employed as a saleswoman by the defendant department store While she was showing coats to a customer, a fellow employee switched on an electric fan and subjected the claimant to a sudden draft Bell's palsy resulted and the claimant filed a claim for an award under the workmen's compensation act of New York A disallowance of the claim by the state industrial board was affirmed by the supreme court, appellate division, and the claimant appealed to the Court of Appeals of New York

In this case, said the court, the claimant was struck by air propelled by an electric fan The result was "palsy which is limited to one side of the face and is acute in onset and called

Bell's" There was a consequent distortion of the parts and of the powers of expression In the opinion of the court, the average man would say that so swift and harsh a disablement was an accidental injury when it was so strangely suffered in the ordinary day's work It seemed to the court that analogy, too, leads to that conclusion "Sunstroke, strictly speaking, is a disease, but the suddenness of its approach and its catastrophic nature have caused it to be classified as an accident" The order of the supreme court, appellate division, and the determination of the state industrial board denying compensation, were therefore reversed—*Luyve v Stein Bros Department Store (N Y)*, 9 N E (2d) 828

**Narcotics Possession of Growing Cannabis Plant Illegal**—The appellant, Harris, was convicted of possessing unlawfully a certain narcotic drug, to wit, cannabis, and was sentenced to serve a term of three years in the state penitentiary He appealed to the Supreme Court of Mississippi

Two police officers of the city of Jackson, Miss, found a plant growing in Harris's back yard which they identified as cannabis At the time the plant was discovered it was green and growing, about 7 feet high, and had seed pods or blooms on it A Mississippi act makes it unlawful for any person to manufacture, possess, have under his or her control, sell, prescribe, administer, dispense or compound any narcotic drug except as authorized by the act The terms "narcotic drugs" is defined to mean coca leaves, opium, cannabis, and every substance neither chemically nor physically distinguishable from them Subsection (13) of section 2 of the act provides

Cannabis includes the following substances under whatever names they may be designated (a) the dried flowering of fruiting tops of the pistil late plant Cannabis Sativa L from which the resin has not been extracted (b) the resin extracted from such tops, and (c) every compound manufacture salt, derivative mixture or preparation of such resin or of such tops from which the resin has not been extracted

Harris contended that the word "cannabis" as used in the act must therefore be limited to the substances as set out above, and that cannabis in any other form must be excluded In other words, the contention was that the legislature intended only to make the possession of the "dried flowering of fruiting tops" a crime and not the possession of the green, growing plant With this contention, however, the Supreme Court disagreed By the use of the word "includes" in defining cannabis, the court said, the legislature clearly indicated that it did not intend to enact an entire definition In the opinion of the court, the legislature intended to denounce as a crime the possession of cannabis in any form The conviction of the appellant was therefore affirmed—*Harris v State (Miss)* 175 So 342

**Evidence Admissibility of Hospital Record**—In the trial of a personal injury suit, a physician testified on behalf of the plaintiff as to the extent of her injuries and as to the treatment he had rendered On cross examination it was shown that the physician treated the patient at a hospital Thereupon the defendant introduced in evidence the hospital record, signed by the physician, containing certain statements inconsistent with the testimony of the physician in court The introduction of this hospital record in evidence, said the district court of appeal, first district, division 2, California, was not error If the physician had not testified at the trial the hospital record would have been hearsay evidence and would have been inadmissible in evidence But since the physician did testify, the hospital record was admissible for the purpose of impeaching his testimony—*Heiman v Marlet St Rl Co (Calif)*, 69 P (2d) 178

**Hospitals Liability for Negligence of Nurse when Acting Under Supervision of Physician**—When, said the Supreme Court of Oklahoma, a person employs a physician of his own choice and enters a hospital to receive treatment from the physician, and the hospital furnishes nurses to assist the physician under his supervision and direction, such nurses are the servants and agents of the physician while so assisting him The hospital is not liable for their acts of negligence while acting under the supervision and direction of the physician—*Raudolph v Oklahoma City General Hospital (Okla)* 71 P (2d) 607

## Society Proceedings

### COMING MEETINGS

- Alabama, Medical Association of the State of Mobile Apr 19 '31 Dr D L Cannon 519 Dexter Ave, Montgomery Secretary  
American Association for the Study of Neoplastic Diseases Atlanta Ga Apr 14 16 Dr Lucene R Whitmore 2139 Wyoming Ave N W Washington D C, Secretary  
American Association for Thoracic Surgery Atlanta Ga Apr 4 6 Dr Richard H Meade Jr 2116 Pine St Philadelphia Secretary  
American Association of Anatomists Pittsburgh Apr 14 16 Dr George W Corner 260 Crittenden Blvd, Rochester N Y Secretary  
American Association of Genito Urinary Surgeons Atlantic City N J May 2 4 Dr Henry L Sanford 1621 Euclid Ave Cleveland Secretary  
American Association of Pathologists and Bacteriologists Atlantic City N J May 3 4 Dr Howard F Karsner 2085 Adelbert Road Cleveland Secretary  
American Association of the History of Medicine Atlantic City N J May 2 Dr F J G Beardsley, 1919 Spruce St, Philadelphia Secretary  
American Association on Mental Deficiency Richmond Va Apr 20 '31 Dr E Arthur Whitmy, Washington Road Elwyn Pa, Secretary  
American Bronchoscopic Society Atlantic City, N J Apr 30 Dr Lyman Richards 319 Longwood Ave, Boston Secretary  
American College of Physicians, New York Apr 4 8 Mr E R Foyland 4200 Pine St Philadelphia Executive Secretary  
American Gastro Enterological Association Atlantic City N J May '31 Dr Russell S Boles 1901 Walnut St Philadelphia Secretary  
American Laryngological Association Atlantic City N J May 24 Dr James A Brubitt 1912 Spruce St Philadelphia Secretary  
American Laryngological Rhinological and Otolological Society Atlantic City N J Apr 27 29 Dr C Stewart Nash 277 Alexander St Rochester N Y Secretary  
American Neurological Association Atlantic City N J May 26 Dr Henry A Riley 117 Last 72d St New York Secretary  
American Orthopedic Association Atlantic City N J May 35 Dr Ralph K Ghormley 110 Second Ave S W, Rochester Minn Secretary  
American Society for Clinical Investigation Atlantic City N J May 2 Dr J M Hyman Jr 2065 Adelbert Road Cleveland Secretary  
American Surgical Association Atlantic City N J May 24 Dr Charles G Mixer 319 Longwood Ave Boston Secretary  
Arizona State Medical Association Tucson Apr 21 23 Dr D F Harbridge 151st Monroe St Phoenix Secretary  
Arkansas Medical Society Texarkana Apr 18 20 Dr W R Brooksher 602 Garrison Ave Ft Smith Secretary  
Association of American Physicians Atlantic City, N J, May 35 Dr Hugh J Morgan Vanderbilt University Hospital Nashville Tenn Secretary  
California Medical Association, Pasadena May 9 12 Dr F C Warnshuis 450 Sutter Street San Francisco Secretary  
Conference of State and Provincial Health Authorities of North America Washington D C Apr 9 11 Dr A J Chesley Minnesota State Office Bldg St Paul Secretary  
Congress of American Physicians and Surgeons Atlantic City N J May 3 4 Dr John T King Jr 1210 Eutaw Place Baltimore Secretary  
District of Columbia Medical Society of the Washington May 4 5 Dr C B Conklin 1718 M St N W Washington Secretary  
Florida Medical Association Miami May 9 11 Dr Shuler Richardson 111 W Adams St Jacksonville Secretary  
Georgia Medical Association of Augusta Apr 26 29 Dr Edgar D Shanks 478 Peachtree St N E Atlanta Secretary  
Hawaii Territorial Medical Association Honolulu May 20 22 Dr Douglas B Bell Dillingham Bldg Honolulu Secretary  
Illinois State Medical Society, Springfield May 17 19 Dr Harold M Camp 14th Bldg Monmouth Secretary  
Iowa State Medical Society Des Moines May 11 13 Dr Robert I Parker 3510 Sixth Ave Des Moines Secretary  
Kansas Medical Society Wichita May 9 12 Mr C G Munns 112 West Sixth St Topeka Executive Secretary  
Louisiana State Medical Society New Orleans May 24 Dr P T Talbot 1430 Tulane Ave New Orleans Secretary  
Maryland Medical and Chirurgical Faculty of Baltimore Apr 26 27 Dr Walter Dent Wise 1211 Cathedral St Baltimore Secretary  
Mississippi State Medical Association Jackson Apr 19 21 Dr F M Dye McWilliams Bldg Clarksdale Secretary  
Missouri State Medical Association Jefferson City May 24 Dr F J Coodwin 634 N Grand Blvd St Louis Secretary  
Nebraska State Medical Association Lincoln Apr 26 28 Dr R B Adams Center McKinley Bldg Lincoln Secretary  
New Hampshire Medical Society Manchester May 17 18 Dr Carleton A S Melcelf 5 South State St Concord Secretary  
New Jersey Medical Society of Atlantic City May 17 19 Dr Alfred Stahl 355 Lincoln Park Newark Secretary  
New York Medical Society of the State of New York May 9 12 Dr Peter Frank 21st 1034 St New York Secretary  
North Carolina Medical Society of the State of, Pinehurst May 24 Dr T W M Long Roanoke Rapids Secretary  
Ohio State Medical Association Columbus May 11 12 Mr C S Nelson 79 East State St Columbus Executive Secretary  
Oklahoma State Medical Association Muskogee May 9 11 Dr L S Wilour Third and Seminole McAlester Secretary  
Philippine Islands Medical Association Zamboanga City Apr 27 29 Dr A S Iernando 817 Taft Ave Manila Secretary  
Society for the Study of Asthma and Allied Conditions Atlantic City N J Apr 30 Dr W C Spain 116 East 53d St New York Secretary  
South Carolina Medical Association Myrtle Beach May 17 19 Dr E A Hines Seneca Secretary  
South Dakota State Medical Association Huron May 9 11 Dr Clarence E Sherwood 102 1/2 Fran Ave S Rapid Secretary  
Tennessee State Medical Association Nashville Apr 12 14 Dr H H Shoulters 706 Church St Nashville Secretary  
Texas State Medical Association of Galveston May 9 12 Dr Holman Taylor 1404 West El Paso St Fort Worth Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1927 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Clinical Pathology, Baltimore

S 140 (Jan.) 1938

- \*Vaccination Against Experimental Meningococcic Meningitis J A Kolmer with assistance of Anna M Rule Philadelphia—p 1
- \*Streptococcus Vaccines in Prevention and Treatment of Respiratory Infections Clinical and Experimental Study E C Rosenow and F R Heilman Rochester Minn—p 17
- Peripelvic Lymphatic Cysts of Kidney Review of Literature on Peripelvic Cysts J C Henthorne Rochester Minn—p 28
- \*Wassermann Reaction in Infectious Mononucleosis Report of Case with Unusual Clinical Features B Hatz Brooklyn—p 39
- Venous and Peripheral Red Blood Cell Values Marjory I Andresen and E R Mudge Denver—p 46
- Spontaneous Rupture of Myocardium T K Rathmell Norristown Pa—p 52
- Histogenesis Classification and Identification of Cells of Blood and Marrow Based on Cultures and Hematologic Studies of Human Marrow and Blood E E Osgood Portland Ore—p 59
- Mechanism of Production of Acidosis S T Helms Baltimore—p 75

**Vaccination Against Experimental Meningococcic Meningitis**—Kolmer immunized guinea pigs, rabbits and monkeys with the subcutaneous injection of from three to five weekly doses of types I and III meningococcus vaccines cultivated in hormone broth for five days and sterilized with tricresol. All have shown the production of varying amounts of agglutinin. The serums of immunized monkeys also showed the presence of complement fixing antibody. Four weeks after the last doses of the vaccines the guinea pigs and rabbits were tested for acquired resistance by the intracisternal inoculation of living virulent meningococci. The monkeys were tested by the intraspinal inoculation of the organisms. All of twelve unvaccinated control guinea pigs died from severe meningitis in from twenty-four to seventy-two hours. Of twenty-eight vaccinated animals, five recovered. Of twelve unvaccinated control rabbits, ten died. Of twenty-eight immunized animals, fifteen died and thirteen recovered. All of six unvaccinated control monkeys showed moderately severe symptoms of meningitis but recovered. Of thirteen immunized animals, three probably showed symptoms of meningitis with recovery while the remaining ten remained entirely well. These results are believed to lend encouragement to efforts for the vaccination of human beings against meningococcic meningitis.

**Streptococcus Vaccines and Respiratory Infections**—Rosenow and Heilman placed large amounts of streptococci freshly isolated from colds and influenza in a menstruum of glycerin-saline solution in the hope that suitable preventive and curative vaccines might be thus available in advance of subsequent outbreaks of epidemic respiratory infections. Through the cooperation of physicians in various parts of the United States and Canada to whom the vaccine was sent they were able to make a further study of this inherently difficult and important problem. The persons vaccinated were chiefly those who were abnormally susceptible to recurring respiratory infections. In the great majority of the different groups representative of different climatic conditions the incidence of colds and of influenza was greatly reduced. A lesser number were slightly benefited and few were not benefited. There were eleven separate camps of the CCC in Minnesota, in each of which some of the men were vaccinated and some were not. In three other camps all men had been vaccinated and in ten additional camps, also in Minnesota none were vaccinated. The incidence of colds or influenza was consistently from a third to a half as great among the vaccinated as among the unvaccinated. In each of the fourteen subgroups of which some were and some were not vaccinated the vaccinated subjects fared better as

regards incidence, severity and duration of respiratory infections than did the unvaccinated controls.

**Wassermann Reaction in Infectious Mononucleosis**—Hatz, in treating a case of infectious mononucleosis, investigated the connection between a positive Wassermann test and a positive heterophile sheep cell agglutination test. Clinically the case was of interest because the complete absence of enlargement of lymph nodes or spleen, coupled with the age of the patient (41 years), could readily have led to a diagnosis of "influenza" or "grip" if proper blood studies had not been made. Serologically, a positive Paul-Bunnell test and a positive Wassermann associated with a negative Kline test were obtained. As the patient recovered, both the Paul-Bunnell and Wassermann tests became negative. This seems to point to a similarity in the mode of formation of the antibodies concerned.

#### American J Obstetrics and Gynecology, St Louis

35 1188 (Jan.) 1938

- Low Reserve Kidney H J Stander and K Kuder New York—p 1
- \*Leukoplakia Leukokeratosis and Carcinoma of Cervix W Schuller New York—p 17
- Theca Cell Tumors S H Geist and J A Games New York—p 39
- Disease of Spinal Cord in Pregnancy Myelopathy of Pregnancy Clinicopathologic Study W Needles and C Davison New York—p 52
- Functional Uterine Bleeding with Especial Reference to That Associated with Secretory Endometrium H W Jones Baltimore—p 64
- Biology of Human Vagina in Pregnancy M E Davis and S A Pearl Chicago—p 77
- \*Identification of Yeastlike Organisms Isolated from Vaginal Tracts of Pregnant and Nonpregnant Women C P Jones and D S Martin Durham N C—p 98
- Blood Picture of Pregnancy H G Watson San Francisco—p 106
- \*Quantitative Determination of Estrogenic Substances in Normal Female Urine During Menstrual Cycle R G Gustavson L W Mason E E Hays T R Wood and F E D'Amour Denver—p 115
- Study of 285 Cases of Breech Delivery W C Danforth and C E Galloway Evanston Ill—p 123
- Prolongation of Pregnancy in Rabbit by Injection of Progesterone G P Heckel and W M Allen Rochester N Y—p 131
- Quinine Iodobismuthate in Treatment of Syphilis Complicating Pregnancy M A Castallo and A E Rakoff Philadelphia—p 137
- Short Wave Therapy in Gynecology and Obstetrics Experiences with 120 Cases E G Waters Jersey City N J—p 143
- Postpartum Hypertension Following a Normal Pregnancy H Meyer New Orleans—p 150
- Basal Metabolic Rate in Normal Pregnancy G C Hanna Jr Philadelphia—p 155
- Superimposed Lipemia During Labor E M Boyd and G Mylks Jr Kingston Ont—p 160
- Myxedema with Menorrhagia and Tetany as Complications Following Partial Thyroidectomy C W Dunn and W R Nicholson, Philadelphia—p 165
- Lateral Vaginal Wall Retractor M C Piper Rochester Minn—p 169

**Leukoplakia and Carcinoma of Cervix**—According to Schuller, the relationship between leukoplakia and carcinoma is confused by the question as to whether the leukoplakia is not merely a precarcinomatous stage of the portio. The entire situation is thrown into further confusion by the improper use of the word "precancerous" or "precarcinomatous". The use of the word in diagnosis should be discarded, its use being restricted to symptomatic description. The diagnosis of the disorder that appears as leukoplakia should be made only on microscopic observation. The differences between the forms of leukoplakia can frequently be recognized with the naked eye or by a colposcopic examination. However, patches which differ slightly in color from the surrounding normal tissue may be overlooked during a hasty examination. In such cases iodine is useful. The application of iodine makes the grossly visible leukoplakia appear clearer and the latent leukoplakia visible to the naked eye. If there is a beginning carcinoma in the latent leukoplakia the iodine will reveal its presence even if other clinical methods fail. Cornification and carcinoma give rise to manifest or latent patches. This observation proves that there are leukoplakias which are definitely carcinomas, or at least carcinoid or carcinomatous epithelium. Leukoplakias which show definite carcinomatous changes and fulfil all of Schottlander's and Kermauner's criteria for carcinomatous 'beläge' are admitted as 'potential carcinomas' even by observers who are diagnosing carcinoma by invasion only. If in addition there is an invasive growth, even the most critical observer will be convinced that it is malignant. The only fact of importance is that the superficial carcinoma-



tous layer, which sometimes resembles a leukoplakia, may retain its superficial character for months or years before becoming invasive. The answer to the question whether such leukoplakias can become malignant is that they are already malignant. Leukoplakias formed through cornification should be differentiated in terminology. This can be done easily by borrowing a term from laryngology, in which similar changes are called leukokeratosis. Cornification may be incomplete or complete. The former is called parakeratosis and the latter keratosis. Excessive hornification is termed hyperkeratosis. Leukohyperkeratosis is a higher degree of leukokeratosis. A certain degree of cutaneous cornification is physiologic. However, a hyperkeratosis is pathologic. Leukokeratosis is used to denote cornification in general. The author has only once found areas of leukoparakeratosis or leukohyperkeratosis developing into carcinoma. There is no causal relationship between parakeratosis or hyperkeratosis and carcinoma of the portio. Advanced cornification, even the autonomous form, does not give rise to carcinoma. Areas of leukoplakia do not warrant radical treatment. A periodic examination is sufficient. These areas of leukoplakia are to be grouped with benign hyperkeratosis of the skin rather than with the leukoplakic areas of the mucosa of the mouth or larynx. A suggestive area of the portio when examined microscopically will turn out to be either a leukokeratosis or a carcinomatous layer ("belag"). The difference between the two is so marked that there is never a question of differential diagnosis. Proliferations of the epithelium, however, due to chronic inflammation do cause confusion sometimes.

**Yeastlike Organisms Isolated from Vaginal Tracts—** Jones and Martin isolated sixty-eight strains of yeastlike fungi from the vaginas of fifty-two pregnant and sixteen nonpregnant women. These strains have been identified and compared with type species of Benham and Stovall by developing a technic that can be carried out in a routine bacteriologic laboratory and that does not require special mycologic training.

**Estrogenic Substances During Menstrual Cycle—** Gustavson and his associates present the graphs of three women, all entirely normal from gynecologic and general points of view. Since a particular ovulation and developing corpus luteum are the controlling factors in the next subsequent menstruation, the relation that the peaks in the graphs bear to the time of the next menstrual period in each case were observed. Neither of the two peaks bears any constant relation to the time of the next menstruation, nor do they to each other. This variation is seen in the graphs of different individuals and in different cycles in the same individual. One of two conclusions is indicated: (1) Either the time of ovulation may vary considerably from cycle to cycle in the same individual, and be considerably different in different individuals, and the corpus luteum may require varying periods of time to reach its full development and activity or (2) the peaks of estrogenic excretion, presuming peaks of concentration in the blood, have no particular relationship to ovulation and corpus luteum activity. With the constancy with which these two peaks appear in the graphs obtained from daily twenty-four hour specimens in normal individuals, the first conclusion seems to be more logical.

### American Journal of Ophthalmology, St. Louis

21 121 238 (Feb.) 1938

- Benzedrine in Cycloplegia. II. Further Report. S. J. Beach and W. R. McAdams. Portland, Maine.—p. 121
- Optical Decentration of the Eye. A. I. Dasherky and D. G. Booshtitch. Khar'kov 23 (Ookrniah) U. S. S. R.—p. 125
- Neuromyelitis Optica. Report of Two Cases. S. H. McKee and F. L. McNaughton. Montreal.—p. 130
- Chronic Cellular Infiltration of Uvea in Septic Endophthalmitis of Ectogenous Origin. H. D. Lamb. St. Louis.—p. 137
- Diagnosis and Treatment of Phorias. W. T. Davis. Washington, D. C.—p. 145
- Measurement of Angle of Maximal Convergence. H. G. Martin. Milwaukee.—p. 161
- Occurrence of So-Called Dimetrophenol Cataracts Without Ingestion of Dimetrophenol. H. Barlan and J. W. Bettman. San Francisco.—p. 163
- Analysis of Seventy-One Consecutive Cases of Unilateral Exophthalmos. M. E. Randolph. Baltimore.—p. 169
- Treatment of Ocular Syphilis. D. Kravitz. Brooklyn.—p. 176
- Muscle Withering by Central Tenotomy. W. G. Watrous and J. M. D. Olmsted. Berkeley, Calif.—p. 182

### American Journal of Orthopsychiatry, Menasha, Wis.

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- Conditioned Reflex and Psychiatry of Infancy. A. Gesell. New Haven, Conn.—p. 19
- Stanford Binet Response Patterns in Epileptics. A. Louise Collins. C. R. Atwell and M. Moore. Boston.—p. 51
- Relationship Therapy. J. Levy. New York.—p. 64
- Criminally Aggressive Behavior in Passive Effeminate Boys. Martha Wilson Macdonald. Chicago.—p. 70
- Psychometric Practice in Adults of Superior Intelligence (III). F. L. Wells. Boston.—p. 79
- The Graphic Arts. E. Liss. New York.—p. 95
- Scoring the Rorschach Test with Specific Reference to Normal Detail Category. Marguerite R. Hertz. Cleveland.—p. 100
- Role of Parents in Development of Emotional Instability. R. Stagner, Akron, Ohio.—p. 122
- \*Psychiatric Study of Car Sickness in Children. J. H. Conn. Baltimore.—p. 130
- The Meaning of Time for Children. W. Bromberg. New York.—p. 147
- Role of Institution in Treatment of Delinquency. Grace Grossmann. Brooklyn.—p. 148
- Instance of Social Origin of Conflict Resulting in Psychoses. J. M. Hunt. Providence, R. I.—p. 158

**Psychiatric Study of Car Sickness—**Conn compared twenty-five car-sick children (thirteen girls and twelve boys) between 6 and 12 years of age with a group of twenty-five patients who were not car sick. The personality of the child and his life situation appeared significant in the occurrence of car sickness. All of the twenty-five car-sick children were described as being emotionally unstable, seventeen were timid and submissive in make-up. Among the complaints associated with the car sickness were restlessness, difficulty in falling asleep, nail biting, fear of the dark, enuresis and episodes of vomiting. Nineteen of the patients were found to be poorly nourished. Six children were of superior intelligence, five were of limited intelligence and fourteen were of average intelligence. The influence of the life situation was illustrated by a series of play contacts. In several cases the fears of the dark, general apprehensiveness and timidity improved in association with the disappearance of the car sickness. One child vomited while riding in a street car and in an automobile but was not disturbed while riding in a taxicab. Another patient was car sick only during the winter months. When the child was given a chance to express himself about his experiences on the street car and automobile, it was possible to begin to understand such reactions. In the verbatim reports of the play reactions there was no instance in which a car-sick child stated that the doll was at ease in the toy street car. Nor did a child who was not car sick report the anticipation of an accident or speak of the fearfulness of the doll in the toy street car.

### American Journal of Pathology, Boston

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- Role of Cells of Schwann in Formation of Tumors of Peripheral Nerves. P. Bailey and J. D. Herrmann. Chicago.—p. 1
- Pathology of Granuloma Venereum. R. D. Aunoy and E. von Haam. New Orleans.—p. 39
- Pneumococcosis and Pulmonary Carcinoma. A. J. Vorwald and J. W. Karr. Saranac Lake, N. Y.—p. 49
- \*Tuberculous Meningitis and Its Relation to Tuberculous Foci in the Brain. D. Beres and T. Meltzer. New York.—p. 59
- Experimental Study of Complement and Hemolytic Amboceptor Introduced into Chick Embryos. Alice Poll, G. J. Buddingh and E. W. Goodpasture. Nashville, Tenn.—p. 71
- Failure of Allergic Inflammation to Protect Rabbits Against Infection with Virulent Pneumococci. P. R. Cannon and G. Hartley Jr. Chicago.—p. 87
- Fatty Infiltration and Cirrhosis of Liver in Depancreatized Dogs Maintained with Insulin. I. L. Chaikoff. Berkeley, Calif. C. L. Connor and G. R. Biskind, San Francisco.—p. 101
- Pathologic Changes in Placenta Associated with Erythroblastosis of Fetus. L. M. Hellman and A. T. Hertig. Boston.—p. 111
- Calcification of Aorta, Heart and Kidneys of Albino Rat. Katharine Pattee Hummel and L. L. Barnes. Ithaca, N. Y.—p. 121

**Tuberculous Meningitis and Tuberculous Foci in the Brain—**Beres and Meltzer made an anatomic survey of twenty-eight cases of tuberculous meningo-encephalitis and of two cases of tuberculoma without meningitis. In all cases of tuberculous meningitis there was an extension of the inflammatory process into the cortex resulting in foci of encephalitis, which varied in degree from perivascular infiltration to tubercle formation. In a few cases solitary tubercles were found but these were not in contact with the ependyma or leptomeninges. When tubercles

occurred in great numbers, they were due to direct hematogenous dissemination. Large solitary tuberculomas occurred with or without meningitis. Cortical tubercles which might have been responsible for the coexistent meningitis were demonstrated in only six cases. In eleven cases the choroid plexus disclosed the presence of tubercle formation. The changes in the blood vessels which were observed during the course of the study presented no observations that differed from those already described by other authors.

### Annals of Internal Medicine, Lancaster, Pa

11 1077 1394 (Jan) 1938

- \*Treatment of Rheumatoid Arthritis with an Injectable Form of Bee Venom. J. Kroner, R. M. Lintz, Marian Tyndall, Leonora Andersen and Edith E. Nicholls. New York—p 1077.
- Mechanism of Toxic Effects from Combined Use of Calcium and Digitalis. J. S. Golden and W. A. Brams. Chicago—p 1084.
- The Present Status of Rheumatism and Arthritis. Review of American and English Literature for 1936 (Fourth Rheumatism Review). P. S. Hench. Rochester, Minn. W. Bauer. Boston. D. Christ. Los Angeles. F. Hall. Boston. W. P. Holbrook. Tucson. Ariz. J. A. Key. St. Louis. and C. H. Slocumb. Rochester, Minn.—p 1089.
- Rare Manifestation of Gout. Widespread Ankylosis Simulating Rheumatoid Arthritis. A. O. Ludwig, G. A. Bennett and W. Bauer. Boston—p 1248.
- \*Uric Acid in Serum of Gouty and Nongouty Individuals. Its Determination by Folin's Recent Method and Its Significance in Diagnosis of Gout. B. M. Jacobson. Boston—p 1277.
- Plate-like Atelectasis of Lung. Alice Ettinger. Boston—p 1296.
- Comparison of Pressures in Arm Veins and Femoral Veins with Especial Reference to Changes During Pregnancy. C. S. Burwell. Boston—p 1305.
- \*Splenic Irradiation in Treatment of Purpura Haemorrhagica. H. W. Jones, L. M. Tocantins and R. M. Smith. Philadelphia—p 1311.
- Effects of Insulin Hypoglycemia on Diabetic Heart in Children and Youth. H. F. Root. Boston—p 1332.
- Unilateral Hemoglobinuria. Its Occurrence in Infarction of Kidney. E. Libman and A. M. Fishberg. New York—p 1344.
- Present Mortality of Diabetic Children. Remediable and Therefore Hopeful Index of the Future of the Diabetic Child. E. P. Joslin. Boston—p 1348.

**Rheumatoid Arthritis Treated with Bee Venom.**—Kroner and his colleagues gave intradermal injections of bee venom (apicosan) to 100 patients with rheumatoid arthritis, seventy-three of these showed definite improvement, as judged by a fall in the corrected sedimentation index and an alleviation of the clinical symptoms. Seventeen were found to be entirely free from symptoms six months to a year after the treatments were discontinued, eighteen continued to have only mild transitory pains and thirty-eight were moderately improved. Ten of the patients studied had an advanced, active deforming type of arthritis and six of these showed moderate improvement. A patient was not considered improved unless there was a drop in the corrected sedimentation index, if previously elevated, as well as improvement in the clinical symptoms. Of the ten patients with advanced arthritis the number of injections for the six who improved was from eight to fifty-two, with an average of 31.5, while the four who failed to improve had from nine to twenty-eight, with an average of 18.5 injections. The duration of treatment for the former varied from two to fourteen months, and for the latter from two to four months. For the patients with a moderately severe arthritis the range of injections was from six to forty-eight and for the patients with a mild arthritis from six to thirty-eight. All injections were given intradermally. The site selected depended on the location of the most painful joints. The skin was cleansed with alcohol and wiped dry with benzene. The treatments were continued at weekly or biweekly intervals, increasing 0.1 cc. at each visit. Only 0.1 cc. was put into a wheal and the wheals were placed about 1 inch (2.5 cm.) apart. When a patient had received 0.5 cc. of concentration I, he was given 0.1 cc. of concentration II, which was increased to 0.5 cc., and then concentration III was started. The dose was then increased 0.1 cc. at each visit until the patient was receiving one ampule of concentration III. All injections were watched for five minutes. If large pseudopodia developed in the wheals, they denoted sensitivity and the dose was not increased for several visits.

**Uric Acid in Gouty and Nongouty Individuals.**—Jacobson employed the recent Folin method in the study of the uric acid in the serum of gouty and nongouty individuals. The analysis of serum derived from blood allowed to clot under

oil furnishes more valid data than does whole blood. The fasting uric acid in 100 nongouty persons consuming a mixed diet ranged from 19 to 67 mg. per cent. In ninety-seven persons the uric acid in the serum was less than 6 mg. per hundred cubic centimeters, it was determined on 177 occasions in twenty-one cases of gout, under various conditions. Its values ranged from 52 to 148 mg. per hundred cubic centimeters. On 174 occasions the value exceeded 6 mg. and on 167 occasions 7 mg. The consumption by gouty individuals of a purine-free diet during periods shorter than three months did not significantly influence the level of uric acid in the serum. The administration of acetylsalicylic acid, colchicine and salyrgan to gouty persons on several occasions was followed by an apparent temporary fall of the uric acid level. The uric acid in the serum, frequently determined in four gouty persons, exhibited marked fluctuation both during asymptomatic intervals and during attacks of acute gouty arthritis. An intensive study of one case over a period of one year demonstrated a significant fall of the mean uric acid level during a period of three days preceding attacks of acute gouty arthritis, during the attacks the level of uric acid in the serum remained unchanged. In four cases of gout there was an apparent direct correlation between the height of the level of uric acid in the serum and the severity of the disease.

**Splenic Irradiation in Hemorrhagic Purpura.**—In twelve patients with hemorrhagic purpura who received irradiation to the spleen, Jones and his associates found the response to roentgen therapy ineffective. An increase in platelets occurred in one patient but did not persist after further roentgen treatment. Many of the patients received 200 roentgens without favorable response. It seems probable that there are certain patients with this disease who will respond in a manner such as described by Mettier and others, and that there are other patients with the same disease who will fail to respond to adequate roentgen treatment. The authors' plan of treatment is as follows: If the patient is not in a dangerous state from loss of blood, they give him an opportunity to recover without any special form of treatment. If there is progressive anemia, small transfusions are used. These are given every two or three days or at times more often or in larger doses. Vitamin C is given intravenously in selected cases. Liver extract is given intramuscularly and orally. The use of snake venom and x-rays in sufficient doses is continued in all patients in whom it is safe and finally, when all other measures fail, splenectomy is resorted to. In one patient who had an acute intra-abdominal condition there was a sudden drop in red blood cells following roentgen therapy and in a patient with a long bleeding time intracranial hemorrhage developed and the patient died after roentgen treatment, probably as a result of retching and vomiting.

### Archives of Pathology, Chicago

23 149 302 (Feb) 1938

- \*Mechanism of Shock. Effects of Intravenous Injection of Salt Solution in Collapse Induced by Mechanical Impounding of Blood in Splanchnic Region in Normal and in Hyperthyroid Dogs. Opal E. Hepler and J. P. Simonds. Chicago—p 149.
- Spontaneous and Experimental Amebic Infection in Reptiles. H. L. Ratcliffe. Philadelphia and Q. M. Geiman. Boston—p 160.
- Multiple Mesenchymal Hemendothelioma. Report of Case. S. M. Rabson. New York—p 185.
- Reaction of Lymphatic Tissue in Early Stages of Bacterium Monocytogenes Infection. Eleanor A. Conway. Chicago—p 200.
- Evidences of Syphilis in Mound Builders. Bones. Gross. Pathologic Study. W. L. Haltom. Martinsburg, W. Va. and A. R. Sbands Jr. Wilmington, Del.—p 228.
- Recent Contributions to Immunology of Helminthic Infections. J. T. Culbertson. New York—p 256.

**Mechanism of Shock.**—Hepler and Simonds find that, when blood is impounded in the liver and gastro-intestinal tract by mechanical constriction of the hepatic veins in dogs, the systemic blood pressure falls abruptly to a level equivalent to from 35 to 70 per cent of the original pressure and is maintained for periods of at least thirty minutes. Injection of physiologic solution of sodium chloride during constriction of the hepatic veins in quantities more than the estimated initial blood volume induces a rise in systemic blood pressure during the injection, but the pressure falls almost to the previous low level within one to three minutes after the injection is stopped. The blood volume after injection of the solution and while the

hepatic veins are still constricted may be either greater or less than the calculated initial volume and the saline solution injected. Blood volumes after release of the hepatic veins were invariably much lower than the calculated initial volumes and the saline solution injected. The rate of fall in blood pressure and reduction in blood volume after injection of saline solution indicate the rapidity with which fluid escapes from the circulating blood when a considerable part of the total volume of blood is impounded in a known region of the body. Thyrotoxicosis in dogs adds a complicating factor in experiments of this type. In dogs submitted to injection of large amounts of saline solution much fluid was found to have escaped into the lumen of the stomach and into the gastric submucosa. The peritoneal cavity contained relatively little fluid, and the retroperitoneal tissues and the walls of the gallbladder and small intestine were moderately edematous.

### Canadian Public Health Journal, Toronto

29 152 (Jan) 1938

- Atmospheric Pollution in Toronto Canada H M Barrett Toronto —p 1  
Adequate School Examination G Binning Saskatoon Sask —p 13  
Industrial Cadmium Poisoning Report of Fifteen Cases Including Two Deaths T M R Bulmer H E Rothwell and E R Frankish Toronto —p 19  
Isolation of Virus from Cases of Influenza in Toronto R Hare and Chun Hui Yen Toronto —p 27

### Florida Medical Association Journal, Jacksonville

24 363 418 (Jan) 1938

- Impaired Hearing from Certain Drugs and Chemical Poisons H M Taylor Jacksonville —p 377  
Traumatic Surgery L J Netto West Palm Beach —p 385  
Urinary Infestations with *Trichomonas vaginalis* in the Male P D Melvin Miami —p 391  
Elliott Treatment in Thirty Three Cases H Weems Sebring —p 393  
Ocular Complications Following Dengue Epidemic of 1934 M Faver Miami —p 395

### Journal of Allergy, St Louis

9 105 210 (Jan) 1938

- Variations in Specificity of Skin Sensitizing Antibodies in Allergy of Man, as Shown by Neutralization with Antigens W B Sherman and A Stull New York —p 105  
Studies in Experimental Hypersensitiveness in Rhesus Monkey V Technic for Demonstrating Absorption of Undigested Protein H W Straus and M Walzer Brooklyn —p 121  
\*Scarlet Fever Immunization by Intracutaneous Injection of Scarlatinal Streptococcus Toxin R A Kern Jean Crump R L Roddy and S Borow Philadelphia —p 125  
Acquired Specific Hypersensitivity to Simple Chemicals I Eczematous Sensitivity to Clothing and to Cosmetics with Especial Reference to Dyes J Goodman Boston and M B Sulzberger New York —p 136  
Observations on Treatment of Asthma and Related Conditions with Suprarenal Cortical Extract (Cortin) L E Prickman and G A Koelsche Rochester Minn —p 158  
Mistakes in Allergic Diagnosis and Treatment G L Lambright, Cleveland —p 166  
Allergic Molds in the Pacific Northwest P Schonwald Seattle —p 175  
Cold Curve Obtained with Allergic Blood Serum J M Anderson Salt Lake City —p 180

#### Immunization with Scarlatinal Streptococcus Toxin

—Kern and his associates report their observations during the past two years on the intracutaneous injection of scarlatinal streptococcus toxin for the production of active immunity against scarlet fever. Their test subjects included 140 children from 16 months to 13 years of age, all of whom had been found to have a positive Dick test. Twenty-six of the children were frankly allergic. Scarlatinal streptococcus toxin, as prepared by a commercial house under license by the Dick scarlet fever commission, was used. The material was that usually employed in subcutaneous injection, containing 500, 2,000 8,000 25,000 and from 80,000 to 100,000 skin test doses respectively, per cubic centimeter. Each child was given weekly intracutaneous injections of toxin into the skin of the outer aspect of the upper arm. It was found that the intracutaneous injection of scarlatinal streptococcus toxin in about one-tenth the dosage employed subcutaneously will result in a negative Dick test in more than 90 per cent of susceptible subjects. Since the immunity so conferred would appear not to be as lasting as that by the full

subcutaneous dosage, those immunized by the intracutaneous method should be retested every six months and, if found Dick positive, should again receive a course of injections. The intracutaneous method has the great advantage of unusual freedom from severe general reactions.

### Journal of General Physiology, New York

21 269 410 (Jan) 1938 Partial Index

- Area and Visual Threshold G Wald New York and Cambridge Mass —p 269  
Studies on Enzymatic Histochemistry XXV Micro Method for Determination of Choline Esterase and Activity Hydrogen Ion Concentration Relationship of This Enzyme D Glick Copenhagen, Denmark —p 289  
Id XXVI Histologic Distribution of Choline Esterase in Gastric Mucosa Normally and After Administration of Certain Drugs D Glick, Copenhagen, Denmark —p 297  
Concentration and Purification of Bacteriophage J H Northrop Princeton N J —p 335  
Ultracentrifugal Analysis of Concentrated *Staphylococcus* Bacteriophage Preparations R W G Wyckoff Princeton N J —p 367

### Journal of Infectious Diseases, Chicago

62 1 128 (Jan Feb) 1938

- Simultaneous Cutaneous and Lymphnodal Shwartzman Phenomenon. E E Eiler H T Karsner and L Meschan Cleveland —p 1  
\*Measles Inclusion Bodies in Blood and in Tissue Cultures Jean Broadhurst Gladys Cameron and V Saurino New York —p 6  
Tissue Cultures of Human Throat Inclusion Bodies Jean Broadhurst Gladys Cameron and Inez Taylor New York —p 21  
Studies on Vaccinia Virus Determination of Correlative Factors Between the Rate of Multiplication of Virus in Skin and Histologic Changes Produced D Widelock New York —p 27  
Mucoid Phase in Dissociation of the Gonococcus P J Almaden, Little Rock Ark —p 36  
\*Hemolytic Streptococci from Throat of Normal Young Adults A W Frisch Madison Wis —p 40  
Toxicity of Young Cells of *Salmonella Paratyphi* A and B When Lysed by Bacteriophage Ruth E Gordon and C N Stark Ithaca N Y —p 45  
Rate of Disappearance of Crystalline Egg Albumin Following Its Intravenous Injection H B Kenton Chicago —p 48  
Studies on Minute Hemolytic Streptococci IV Further Observations on Distribution of Ordinary and Minute Beta Hemolytic Streptococci in Normal and Diseased Human Beings P H Long and Eleanor A Bliss Baltimore —p 52  
Study of Actinomyces Necrophorus in Soil Cultures E A Tunnichliff Bozeman Mont —p 58  
Susceptibility of Mice to Inhaled Type III Pneumococci E G Stillman New York —p 66  
Chemical Composition and Antigenic Properties of Fractions of Smooth and Rough Strains of *Staphylococcus Aureus* Rachel E Hoffstadt Seattle and W M Clark Tacoma Wash —p 70  
Local Immunity to Scarlet Fever Toxin G F Dick and Gladys H Dick Chicago —p 83  
\*Alpha Type Streptococci in Food Poisoning W E Cary, G M Dack and Ellen Davison Chicago —p 88  
Reactions to Tuberculin from Unusual Type of Acidfast Bacillus Results in 525 Children of Simultaneous Intradermal Injection of Old Tuberculin and Tuberculin Prepared from an Atypical *Mycobacterium* P W Beaven Rochester N Y —p 92  
Effects of Splenectomy and Blockade on Passive Transfer of Antibodies Against *Trypanosoma Lewisii* W H Taliaferro Chicago —p 98  
Cultural Studies on Donovan Bodies of Granuloma Inguinale R B Dienst R B Greenblatt and E S Sanderson Augusta Ga —p 112  
Taxonomic Relationships of *Lactobacillus Bifidus* (*Bacillus Bifidus* Tisser) and *Bacteroides Bifidus* J E Weiss and L F Rettger, New Haven Conn —p 115  
Relation of Anticlotting Property of Streptococcus Viridans to Dissociation and Hydrogen Ion Concentration Ruth Tunnichliff and Carolyn Hammond Chicago —p 121  
Satellite Hemolytic Zones in Blood Agar *Staphylococcus* Cultures G Bernice Rhodes Chicago —p 124

**Measles Inclusion Bodies**—Broadhurst and her co-workers observed various morphologic types of inclusion bodies in measles blood taken from one day before the beginning of the rash to ten days after its appearance. These inclusion bodies are more satisfactorily demonstrated in blood smears by minimal staining with simple stains than with the customary complex blood stains. In blood smears inclusion bodies are readily demonstrable in the mononucleated types of white corpuscles. The inclusion bodies in measles blood smears include minute pinpoint bodies, somewhat larger globular bodies and compact densely staining masses sometimes definitely crescentic. While all types of white corpuscles may show shattered cells and disintegration changes, the mononucleated corpuscles show other distinctive characters: (1) the nucleus is paler than granule loaded cytoplasm when stained with methylene blue (2) the

margins are bubbly or eruptive and (3) occasional bizarre extensions or protusions are seen. Many of the tissue culture cells containing inclusion bodies are highly vacuolated and are often swollen and distorted in outline, showing both "ballooning disintegration" and "colligation."

**Hemolytic Streptococci from Normal Throats**—Frisch found an incidence of forty (64 per cent) of group A streptococci in the throats of 621 normal adults of college age. Of 101 strains of hemolytic streptococci sixty-seven, or 66.5 per cent, lysed human fibrin, but only forty, or 39.6 per cent, were members of group A. Persons with intact tonsils harbored group A streptococci somewhat more frequently than persons whose tonsils had been removed.

**Alpha Type Streptococci in Food Poisoning**—Cary and his collaborators report a large institutional outbreak of food poisoning in which streptococci were present in enormous numbers in the incriminated beef croquettes. Filtrates and living cultures were fed to seven volunteers. Another green streptococcus isolated from coconut custard pie implicated in another outbreak was similarly fed. Diarrhea was the most prominent symptom and occurred among 117 out of 208 young men. Their experience with human volunteers has indicated that living cultures of alpha type streptococci, and not filtrates, are necessary to give rise to symptoms of food poisoning in man. The incubation period corresponds to that in *Salmonella* type food poisoning (twelve hours), which is caused by living organisms, rather than the staphylococcal type (three hours), due to soluble enterotoxin substance.

### Journal of Pediatrics, St Louis

12 1 138 (Jan) 1938

- Normal Gastric Secretion of Infants and Small Children Following Stimulation with Histamine R D Cutter San Francisco—p 1
- \*Blood Coagulation Factors in Hemorrhagic Disease of the New Born and Value of Intramuscular Injections of Father's and Mother's Blood H N Sanford and Eleanor I Leslie Chicago—p 16
- Metabolism Studies on Age Disposition to Ketosis in Human Beings W Heymann Cleveland—p 21
- \*Can Sensitization Be Induced by Intracutaneous Injection of Tuberculin? W E Nelson A G Mitchell and Estelle W Brown Cincinnati—p 26
- Prophylaxis of Poison Ivy Use of Almond Oil Extract in Children I C Bachmann East Providence R I—p 31
- Tidal Drainage in Treatment of Acute Uncomplicated Empyema in Children A Weller Boston—p 38
- Use of Intubation and Tracheotomy in Treatment of Obstructive Laryngitis in Children W A Howard Washington D C—p 47
- Ectopia Cordis cum Sterni Fissura Case Study R N Barlow St Louis—p 58
- Banana Therapy in Diarrheal Diseases of Infants and Children C L Joslin J E Bradley and T A Christensen Baltimore—p 66
- Psychologic Care During Infancy Ruth Morris Bakwin and H Bakwin New York—p 71
- Rheumatic Nodules H I G Anderson Durham N C—p 91
- \*Herpetic Stomatitis Katharine Dodd L M Johnston and G J Buddingh Nashville Tenn—p 95

**Blood Coagulation Factors in Hemorrhagic Disease**—In two infants with hemorrhagic disease of the new-born, Sanford and Leslie found the faulty coagulation to be due to a failure of the platelets to disintegrate. This is a qualitative platelet dysfunction and is an exaggeration of the platelet action in blood of the normal new-born infant. There was no evidence that small intramuscular injections of blood from the parents had any effect on the coagulation time of the blood of twenty normal new-born infants. One of the infants with hemorrhagic disease recovered after a small injection of the father's whole blood intramuscularly. The second infant recovered without treatment of any kind.

**Tuberculin Sensitization by Intracutaneous Injection**—Nelson and his colleagues tried to determine whether tuberculin in amounts as great as or slightly greater than ordinarily used for skin testing is capable of inducing sensitization to itself in man. If this were the case tuberculin testing after the initial injection would be valueless for the detection of tuberculous infection. Their evidence does not support the theory of artificially induced tuberculin sensitization by single or repeated intracutaneous tuberculin injections for the following reasons: 1 The third injection was performed ninety-six hours after the first test, an interval presumably too short to permit induction of sensitization. 2 A consistent individual

response was not obtained. 3 Neither were consistent maximal rates or sizes of reactions obtained in later tests. 4 X-ray evidence, usually accepted as diagnostic of tuberculous lesions, in children of all groups who had no or only questionably positive reactions in the first two tests indicated that tuberculous lesions may be associated with a low degree of tuberculous allergy. This does not imply that sensitization to tuberculin or tuberculo-protein is impossible, but such sensitization does not appear likely from the ordinary use of tuberculin for purposes of cutaneous testing.

**Herpetic Stomatitis**—In the last eleven years Dodd and her associates have seen in the Vanderbilt Hospital Children's Clinic eighty-eight cases of a form of stomatitis which appears to be a clinical entity. The disease occurred in children from a few weeks to 14 years of age but was far more common in children between the ages of 1 and 3 years. The disease was apparently contagious, as sometimes two cases were seen in the same family or there was a history that the patient had recently been in contact with a child having a similar condition. The stomatitis was apparently identical with that described in most pediatric textbooks as aphthous stomatitis. There appears to be a sudden onset of illness with fever, general malaise and loss of appetite. Either with the onset of fever, or twenty-four hours or more later, lesions appear in the mouth. When these were seen early, they consisted of reddish blisters of the mucous membrane. Soon the blisters became ulcerated and the ulcers were covered by a yellowish white membrane. The commonest sites of the lesions were the tongue, the inner surface of the lips and the buccal and sublingual mucous membrane. In every instance there were, besides the local lesions, marked redness and swelling of the gums with a tendency to bleed easily. Salivation was greatly increased. The older children complained of soreness of the mouth and pain on eating, the younger ones were irritable and often refused to eat or drink anything. Smears of material from the mouth and gums showed no predominating organism. Spirochetes and fusiform bacilli were almost always absent from the localized lesions but were found quite commonly in smears taken from the swollen gums. Cervical adenitis of a well marked degree was noted in fourteen children, a palpable spleen in one and diarrhea in six. Five children had an accompanying herpes of the skin of the lip and two had paronychia with lesions which looked like herpes. Four also had pneumonia, one dysentery, one diphtheria and one influenza bacillus meningitis. The disease appeared to be self limited in nature and lasted from a few days to two weeks. Swabbings from the lesions in the mouth of twelve unselected patients were inoculated immediately onto the scarified cornea of a rabbit in order to prove the presence or absence of the virus of herpes. Typical herpetic vesicles developed within twenty-four to forty-eight hours followed by a purulent keratoconjunctivitis. Usually the virus was transferred to a second rabbit, which was killed at the end of twenty-four hours. Immunity was demonstrated in six of seven rabbits which survived the infection.

### Laryngoscope, St Louis

48 176 (Jan) 1938

- Some Cases of Otolaryngologic Interest That Were Seen on Neurologic Service P Northington New York—p 1
- Abscess of Epiglottis Report of Two Cases G M Coates B H Shuster and W Gordon Philadelphia—p 12
- Sinus as Points of Focal Infection and Treatment of Sinusitis W Fletcher Salem Wis—p 17
- Osteoma of Sinuses M S Ersner and M Saltzman Philadelphia—p 29
- \*Low Grade Fever Result of Nasopharyngeal Infection T P O'Connor Chicago—p 38
- Atresia of Chorda Report of Case J H Childres San Francisco—p 51
- Use of Sulfanilamide in Acute Mastoiditis Report of Case M Vaisberg Patchogue N Y—p 54
- Streptococcus Haemolyticus Meningitis with Recovery Following Use of Sulfanilamide Two Cases D E Godwin Long Beach Calif—p 59
- Deafness in the College Age M M Kafka Brooklyn—p 65
- Hearing Tests in an Iowa County W H Gardner Ottumwa Iowa—p 69

**Nasopharyngeal Infection**—O'Connor discusses fifty-five cases of nasopharyngeal infection. The three most common complaints, in addition to fever and fatigue, were headache, loss of weight and aching of muscles. Thirteen of the patients were

known to have had a persistent leukocytosis and one patient had leukopenia. The ages of the group varied from 5 to 57 years. The duration of symptoms before patients were seen ranged from two weeks to seven years. There was no evidence of sinus infection except in four patients. The turbinal mucosa appeared perfectly normal. No secretion was present in the region of the natural orifices of the accessory sinuses. Transillumination of the maxillary sinuses was brilliant. X-ray studies of the sinuses, made in the majority of cases, were normal. Thirteen showed evidence of chronic but slight infection of the tonsils and 25 per cent showed hypertrophy of the lateral wall of the pharynx. The ears, structures of the nose and larynx were without significant abnormalities in all the cases. Inflammation of the nasopharynx of varying degree was found. In many cases it was localized in the remains of the pharyngeal tonsil. In others a diffuse inflammation of the whole nasopharyngeal area was present. A third group showed a localized inflammatory area on one wall or the other. A cultural study in most of the cases confirmed the presence of definite infection. While the bacteriologic studies confirmed the clinical and physical observations in the majority of cases, there were some that did not coincide. The infection may be situated deep in the tissue so that the responsible bacteria are not obtained in a culture taken from the surface. The symptoms may disappear when drainage is enhanced or absorption decreased, even though organisms still are present in large numbers. The cultures were particularly valuable in determining the type of treatment to be used, since dyes and other germicidal agents vary markedly in their effect on different bacteria. The local treatment consisted of direct application to the involved area of a solution of silver nitrate of varying strength, depending on the degree of congestion, or, in some instances, of a weak solution of zinc sulfate. This was followed by generous application of a 2 per cent aqueous gentian violet solution or a 2 per cent solution of methylene blue. When there was no response to this treatment, a 0.5 per cent solution of colloidal iodine was used, followed by the dye, and when there was no relief an autogenous filtrate was made, combined with a water soluble base and applied directly to the area. Usually, during the course of local treatment, the patient was instructed to use saline irrigations and mildly antiseptic drops. The number of treatments required to clear up the infection was dependent on the species of organism present. In most cases the focus was eradicated with from six to twelve treatments. Nine of the fifty-five patients failed to respond to treatment. Patients who do respond may be subject to reinfection with return of symptoms but then respond to treatment much more readily than in the initial attack.

### Military Surgeon, Washington, D. C.

S2 81 184 (Feb.) 1938

- Some Aspects of the Modern Concept of Orthodontics L. C. Fairbank —p 81
- Fleet Medicine G. F. Cottle —p 91
- Cardiovascular Disease in Neuropsychiatric Patients B. A. Movness —p 97
- Communications in the Medical Regiment W. P. Davenport —p 107
- Report on Treatment of Dermatitis Venenata During the Season of 1937 at Fort Washington Md. S. W. French —p 127
- The Training Schedule of the Eighth Medical Regiment R. A. I. M. Kisch —p 131
- Neuritis Following Serum Administration R. J. Hoagland —p 134

### Missouri State Medical Assn Journal, St. Louis

35 29 68 (Feb.) 1938

- Accurate Differential Section for Treatment of Trigeminal Neuralgia R. M. Klein —p 29
- \*Treatment of Staphylococic Septicemia with Specific Antitoxin H. M. Parker Kansas City —p 30
- Coronary Thrombosis in Young Adults Report of Case in Man Aged 30 M. S. Franklin St. Louis —p 32
- Modern Advances in Treatment of Sepsis H. Allen St. Louis —p 35
- Function of the Child Welfare Program in Missouri O. F. Bradford Columbia —p 37
- Function of the Maternal Welfare Program in the State of Missouri P. F. Fletcher St. Louis —p 38
- Review of Idiopathic Ulcerative Colitis Report of Five Cases J. C. Kopelowitz Los Angeles —p 41

### Staphylococic Septicemia Treated with Antitoxin—

In a review of the four cases that Parker presents certain salient features deserve especial mention. The treatment of staphylococic septicemia is far from satisfactory. General

supportive measures, transfusions at frequent intervals and the drainage of free pus whenever found still remain the foundation of all successful therapy in these infections. In each of these four cases such measures were instituted and in each instance the clinical course justified the conclusion that the early death of the patient was only a matter of time. Staphylococcus antitoxin was then added to the program, with brilliant results in three of the four cases. The cardinal features of severe staphylococic infections were present in these cases. A rapidly progressive anemia requiring frequent transfusions, the phenomenon of venous thrombosis, the ultimate dissolution of the thrombus with septicemia, tissue invasion, toxemia, pulmonary metastasis and the like are readily explained in terms of a pyogenic organism with an exotoxin which is hemolytic, dermonecrotic, thrombophlebitic and, in sufficient dosage, lethal. The thrombophlebitis must be regarded as an essentially protective mechanism on the part of the host.

### Nebraska State Medical Journal, Lincoln

23 41 80 (Feb.) 1938

- Electrocoagulation Treatment for Inoperable Carcinoma of Rectum W. F. Bowers Minneapolis —p 41
- Emergency Treatment of Fractures of Spinal Column J. E. M. Thomson Lincoln —p 45
- Compression Fractures of Body of Vertebra W. L. Sucha Omaha —p 47
- Some Recent Advances in Female Endocrinology C. S. Moran Omaha —p 51
- Management of Infection and Gangrene of Extremities in the Diabetic M. Grodinsky Omaha —p 54
- Public Health Aspects of a Nebraska Milk Supply III J. D. Le Mar and M. E. Gunderson Omaha —p 59
- Use of Cystometer in Diagnosis of Neurogenic Bladders (with Comments on Treatment and Case Reports) P. S. Adams, Omaha —p 63

### New England Journal of Medicine, Boston

218 143 204 (Jan 27) 1938

- Facts and Issues Regarding Public Medical Care M. M. Davis New York —p 143
- Gastrointestinal Ulcer Etiology, Treatment and End Results B. B. Crohn New York —p 148
- Cerebral Arteriosclerosis Vice Presidential Address W. J. Upton Burlington Vt —p 157
- Carcinoma of the Colon Study of Seventy Cases D. S. Adams Worcester, Mass —p 160
- \*New Conception of Serum Phosphatase Review of Experimental Work S. Maddock, S. J. Thannhauser, M. Reichel and J. Gratian Boston —p 166
- Use of Combined Pontocaine and Novocain for Spinal Anesthesia S. C. Wiggan and J. Tartakoff, Boston —p 170
- Thrombo Angitis Obliterans of Spermatic Cord J. Tartakoff and J. B. Hazard Boston —p 173
- Coronary Occlusion in a Young Adult D. Hilbersleben Boston —p 175

**Serum Phosphatase.**—In attempting to explain the mechanism involved in the elevation of serum phosphatase in pathologic conditions, Maddock and his associates find that the most significant conclusion of clinical import that can be drawn from previous experiments is that what has always been regarded as an increase in amount of serum phosphatase in disease is not an actual increase in enzyme but merely an activation of preexisting enzyme normally present. This necessitates an alteration in the fundamental concept of phosphatase in both normal and pathologic states. The relation of serum phosphatase and bone phosphatase to the growth and repair of bone may well be involved. The mechanism of increased serum phosphatase in jaundice seems to be understandable in that any obstruction to the excretion of bile results in the damming up of both depressing (bile acids) and activating (cofactor) substances. Since the cofactor is more powerful as an activating agent than bile acids are as depressors, the net result is an increase in activity of serum phosphatase. The difficulty of attempting to use phosphatase determinations in the differential diagnosis of liver disease is thus apparent. Phosphatase activity must represent the outcome of reactions in a complex system consisting of enzyme, cofactor, oxidation-reduction potential and substrate. Thus the phenomenon is analogous to the cozymase system described by Warburg and von Euler. Human disease may originate from disturbances in enzymatic activity either from a deficiency or from an excess of any of the factors in the system.



## Northwest Medicine, Seattle

37 1 32 (Jan) 1938

- Psychologic Factors in Physical Disease E M Burns Portland Ore — p 1  
Pathologic Physiology and the Psychoneuroses W Marshall, Appleton Wis — p 5  
Study in Pseudoheredity Cyclic Interrelationship of Juvenile Neuro pathic Traits and Adult Tension Character in Successive Generations A W Hackfield Seattle — p 9  
Food History and Skin Sensitivity M W Moore Portland Ore — p 12  
Nucleus Pulposus and Hypertrophy of Ligamentum Flavum Case Reports P G Flothow Seattle — p 14  
Fracture of Neck of Scapula M R Charlton Tillamook Ore — p 18  
Appendicitis in Children C W Brunkow Portland Ore and H Currin Klamath Falls Ore — p 21

## Oklahoma State Medical Assn Journal, McAlester

31 1 32 (Jan) 1938

- Abortion A National Health Problem Gertrude Nielsen Norman — p 1  
Congenital Hypertrophic Pyloric Stenosis F A Glass Tulsa — p 4  
Clinical Labyrinthitis T G Wails Oklahoma City — p 6  
Insulin Shock Therapy Results to Date G W Robinson Jr Kansas City Mo — p 9  
Fractures of Lower End of Humerus in Children J E McDonald Tulsa — p 12  
Abdominal Pain During Pregnancy M J Serwer Oklahoma City — p 15

## Pennsylvania Medical Journal, Harrisburg

41 261 344 (Jan) 1938

- Laryngectomy Its Place in Treatment of Laryngeal Cancer L A Schall Boston — p 261  
Pulmonary Disease Complicating Syphilis Frank or Masked H I Robertson Philadelphia — p 267  
Pulmonary Emphysema G M Piersol Philadelphia — p 269  
Bronchoscopic Treatment of Pulmonary Suppuration with Especial Reference to Use of Polyvalent Stock Bacteriophage W F Moore Philadelphia — p 272  
Surgical Treatment of Bronchiectasis J B Flick Philadelphia — p 274  
Pneumonia Control Plan for Pennsylvania Edith MacBride Dexter Harrisburg and E L Bortz Philadelphia — p 279  
Serum Treatment of Pneumonia V B Callomon Pittsburgh — p 283  
Relation of Nasal Sinus Infection to Involvement of Lower Respiratory Tract G L Whelan Philadelphia — p 287  
Some Practical Experiences with Contact Lenses A G Fewell Philadelphia — p 292  
Malignant Growths of the Thyroid S J Waterworth Clearfield — p 295

## Southwestern Medicine, Phoenix, Ariz

22 1 40 (Jan) 1938

- Orthopedic Aspects of Pain in the Lower Back L W Breck El Paso Texas — p 1  
Treatment of Chronic Suppurative Otitis Media C Gwinn Albuquerque N M — p 4  
Avertin (Trihom Ethanol) as Basal Anesthetic W J Pangman El Paso Texas — p 6  
\*Purpura Haemorrhagica Fulminans H S Denninger Glendale Ariz — p 8  
Mastoiditis with Brain Abscess J L Johnson Phoenix Ariz — p 10  
Traumatic Emergency Surgery C P Austin Douglas Ariz — p 11

**Fulminating Hemorrhagic Purpura**—Denninger discusses two cases of fulminating hemorrhagic purpura. The cases were strikingly similar and suggest a possible familial tendency. The one occurred in a male child of 3 and the other in his aunt of 16 years. The etiology was doubtful thrombocytopenia was suggested. In the child the first symptom occurred about 4 o'clock in the morning and was followed by death in eleven hours. In the second patient, evidence of definite symptoms started at 5 o'clock in the morning and had a lethal termination eight and one-fourth hours later. Signs of cerebral irritation (hemorrhage) were prominent in both as judged by pupillary reaction, clonic and tonic spasms, vomiting and diffuse abnormal body sensations. Scurvy may be ruled out on the basis that there was no evidence of dietary deficiency and the absence of large hematomas under the peritoneum or in the deep muscles of the body. Poisoning or drug reactions also were eliminated. Blood studies revealed nothing abnormal indicating that a deranged thrombogenic mechanism was present and that these cases belong in the category of the true idiopathic purpuras of unknown etiology.

## Surgery, St. Louis

3 1 164 (Jan) 1938

- Operative Treatment of Scars Following Bedsores J S Davis, Baltimore — p 1  
Acromegaly Detailed Report on Two Cases C P G Wakeley and F R B Atkinson London England — p 8  
Osteomyelitis of Scapula A O Wilensky, New York — p 21  
Granuloma Venereum (Granuloma Inguinale) of Uterus Tubes and Ovaries E R Pund and V A Gotcher Augusta Ga — p 34  
\*Lymphopathia Venereum Treatment with Diluted Frei Antigen Intradermally and Observations on Diagnosis O L Anderson and O Harnos Norfolk, Va — p 41  
\*Cause of Death in Liver Peritonitis Nature of Toxic Substances Produced by Incubation of Adult Dog Liver H E Martin and H M Trusler Indianapolis — p 58  
Large Bilateral Adenofibromas of the Breast Report of Case in a Girl Thirteen Years of Age G Crile Jr Cleveland — p 68  
Stenosis of Large Bowel Due to Amebiasis Report of Case Treated by Extensive Resection F Christopher Evanston Ill — p 75  
Diaphragmatic Hernia in Infants Surgical Treatment with Use of Renal Fascia J Weinberg Omaha — p 78  
Effect of Anesthesia on Hepatic Function F P Coleman Ann Arbor Mich — p 87  
Choice of Anesthetic Agents and Methods of Their Administration for Diabetic Patients D E Hale Butte Mont and R M Tovell Hartford Conn — p 100  
Acute Appendicitis A Strauss and J Tomarkin Cleveland — p 111  
Bone Metastases from Carcinoma of Stomach S E Lawton Chicago — p 121  
Effect of Carbon Arc Radiation on Wound Healing H M Sweeney New Orleans — p 127

**Treatment of Venereal Lymphogranuloma with Diluted Frei Antigen**—In fifty-four cases which gave positive Frei reactions, there were only three without characteristic clinical signs and history. Accordingly Anderson and Harnos have found the Frei test to be specific in 94.5 per cent. They observed discrepancies in certain cases when tested by various potent Frei antigens, also some differences in the microscopic appearance, which seem to support the opinion that there are at least two subgroups of the disease. The treatment in their forty-eight cases of venereal lymphogranuloma is presented. They feel that the use of diluted Frei antigen, administered intradermally, has demonstrated encouraging results and that its use should be continued with further study. The use of Frei antigen as a vaccine in treatment was not familiar to them in November 1935, when they began this type of treatment at the Norfolk Marine Hospital. They decided on the intradermal administration of the vaccine as a route more effective than subcutaneous or intravenous treatments. The sterile and potent Frei antigen, diluted four times, was found an effective agent in treatment. The resulting vaccine has been a 1:24 or 1:28 dilution of the heat treated pus in physiologic solution of sodium chloride. This diluted Frei antigen is the only type of treatment received by the authors' lymphogranuloma patients, plus occasional lymphadenectomy, incision and drainage. They administer the diluted antigen on the nonhairy surfaces of the thighs, at intervals of five days. The initial dose is 0.05 cc, which is increased at each dose by 0.05 cc up to the maximal dose of 1 cc. The treatment is continued until the sinuses heal and the adenopathy subsides, or, in case lymphadenectomy was performed, until the wound heals, requiring from six to twelve doses of the vaccine. In general, the clinical response to the vaccines consisted of gradual reduction in the size of the gland to only a small indurated area within a period of from one to two months. The treatment prevented the formation of new fistulas, induced within a week a beginning reduction in the size of the glandular enlargement, and materially shortened the time required to close an operative wound.

**Death in Liver Peritonitis**—Martin and Trusler believe that the putrefactive pressor bases, tyramine, iso-amylamine, phenylethylamine and histamine-like substances, are rapidly produced by the action of bacteria on liver substances during the process of incubation. Whether or not the amines with pressor effects on the blood pressure predominate over the amines with depressor effects depends on the kind of bacteria present in the digests. These toxic amines and other heat-stable, water-soluble, toxic substances formed in the process of incubation of dog liver were lethal when the equivalent of 200 to 300 Gm of incubated liver was given slowly intravenously to an anesthetized dog. When injected intravenously into a

dog without anesthesia, the equivalent of 100 Gm of incubated liver was sufficient to cause rapid death. The terminal event is convulsive seizures. In addition to other factors, putrefactive ammes may also contribute to the rapid death of dogs subjected to liver peritonitis. It is conceivable that deep-seated infections in human subjects may give rise to toxic ammes which enter the general circulation and contribute to the shock syndrome frequently associated with such infections.

## Surgery, Gynecology and Obstetrics, Chicago

66 129 256 (Feb. 1) 1938

- Clinical Behavior of Early Carcinoma of Cervix. W. Schiller. New York.—p. 129
- \*Cutaneous Healing in Wounds. Notes. J. H. Conway, New York.—p. 140
- Rate of Emptying of Human Gallbladder in Pregnancy. Maude M. Gerdes and E. A. Boyden. Minneapolis.—p. 145
- Krukenberg Tumors of Ovary. Clinical and Pathologic Study of Twenty-One Cases. E. Novak and L. A. Gray. Baltimore.—p. 157
- Study of Appendicitis. Analysis of 1463 Consecutive Cases. E. W. Sprague, R. A. Schaaf, C. MacArthur, S. Z. Hauke, H. Hantman, and P. W. Haley. Newark, N. J.—p. 166
- Relation of Cartilage to Repair of Bone. J. D. Bisgard and J. M. Fariss. Omaha.—p. 173
- \*Inexhaustible Source of Blood for Transfusion and Its Preservation. Preliminary Report. J. R. Goodall, F. O. Anderson, G. T. Altman, and F. L. MacPhail. Montreal.—p. 176
- Obstetric Anesthesia. I. Laboratory Method for Studying Effects of Anesthetic and Analgesic Agents on Both Uterus and Fetus. B. E. Mouar and C. M. Blumenfeld. Salt Lake City.—p. 179
- Inguinal Hernia. I. Anatomy of the Region. B. J. Anson and C. B. McVay. Chicago.—p. 186
- Id. II. Surgical Treatment of Direct Inguinal Hernia. L. M. Zimmerman. Chicago.—p. 193
- \*Total Tendon Transplant for Slipping Patella. New Operation for Recurrent Dislocation of Patella. E. D. W. Hauser. Chicago.—p. 199
- Segmental Enteritis. R. Lewisohn. New York.—p. 215
- Impalement of Rectum. T. M. Conway. New York.—p. 222
- Evipal Soluble. Basal Anesthesia. M. L. Weinstein. Chicago.—p. 227
- Pilonidal Cysts. S. A. Ziemann. Chicago.—p. 231
- Thrombophlebitis of Verrucose Veins. E. A. Edwards. Boston.—p. 236
- A New McDonald's Solution. E. McDonald. Philadelphia.—p. 246

**Cutaneous Healing in Wounds.**—Conway declares that for a surgical incision and suture to have a direct effect on the degree of fibroblastic response in a clean incised wound and also on the ultimate cosmetic result the incision should be made parallel to Langer's lines of elasticity of the skin. In operations about the face and neck, the direction of these lines of elasticity is easily observed since they can be defined through facial grimace. However, in operations on the abdomen and extremities, primary importance is attached to exposure of the wound and attention rarely is paid to the direction of the incision as regards cutaneous tension. It is important to hold the skin taut while it is being incised so that incision may be made sharply at a right angle to the flat cutaneous surface. If this is not done the operator may divide the layers of the skin in an oblique plane—the so-called beveled incision. It is difficult to suture accurately the edges of such an incision in close approximation. When fine arterial silk threaded on small straight needles of the milliner's type is applied with the on-end mattress stitch, ideal approximation of the cutaneous margins may be achieved. Crepe lisse dressing as advocated by Halsted impregnated with collodion and applied directly to the surface of the skin or, if the wound is not healed completely, over a layer of silver foil is an invaluable aid in limiting the stress on a sutured wound when it is in the early stages of healing and before its maximal tensile strength has been reached.

**Placental Blood for Transfusion.**—Goodall and his associates find that the placental blood furnishes an unfailing source of supply for transfusion. When the baby is born it is laid on the mother's abdomen. The cord is tied or clamped and wiped clean with a sponge moistened in 75 per cent alcohol. The cord is stripped free from blood for about 6 inches. The cord is cut with sterile scissors and the severed end is lowered below the vulva. A special towel with a 2 inch hole in its center is put over the hand holding the cord in such a manner that the hand is opposite the hole. The towel is clamped to the operator's gown near the elbow with an Allis forceps. The end of the cord is passed through the aperture in the towel and so placed that its end hangs in the funnel of the receptacle held

by the nurse. Pressure on the cord is then released completely and the blood is collected. Pressure on the fundus by the nurse or assistant hastens the emptying of the placenta. When completed, the cord is clamped. The process occupies about three minutes, and the average amount collected from each patient may vary from 100 to 150 cc. Blood grouping and Wassermann reactions receive due consideration and blood is always available when it is needed for transfusion. The preservative (suitable for sixty days) that has been found to be most suitable is that proposed by the Moscow Institute of Haematology and consists of 7 Gm of sodium chloride, 5 Gm of sodium citrate, 0.2 Gm of potassium chloride, 0.004 Gm of magnesium sulfate and 1,000 cc of twice distilled water. The solution is put up in ampules of 25 cc, which gives the proper dilution when added to 100 cc of distilled water. The preservative and blood from each case are mixed in approximately equal proportions. Preserved blood has many advantages over fresh blood. Food and other extraneous allergic reactions are eliminated. Certain individuals absorb a large quantity of unsplit proteins during digestion and these are capable of being neutralized by the allergins of that specific person, but the recipient may not be so fortunate, and, if not, an allergic reaction must follow. In preserved blood, autodigestion occurs and allergic reactions do not occur after forty-eight hours of preservation. Before transfusion, the fetal blood should be heated in a basin of water and shaken before transmission. It should be filtered through two layers of sterile gauze. Two or more fetal bloods may be given simultaneously, if necessary, after separate matching.

**Tendon Transplant for Patella.**—Hauser classifies and divides recurrent dislocations of the patella into three clinical types: congenital, traumatic and rachitic. An operation is described which is original in that it fulfils all the prerequisites of satisfactory correction: (1) it prevents recurrence of the dislocation, (2) it gives the patient a feeling of absolute security, (3) it reestablishes the functional capacity, (4) it gives the knee a normal appearance, (5) the risk to the patient is minimal and (6) the convalescence is short. Illustrative cases are reported. The method has been in use for five years and the results have been uniformly satisfactory. The technique of the operation referred to is as follows: A curved incision is made, starting above the upper lateral margin of the patella, curving laterally around the patella and coming back to the midline about half an inch below the tubercle of the tibia. The skin is freed on both sides to expose the patella, the conjoint tendon and the patellar ligament. The patellar ligament is then dissected free down to its insertion. A block of bone about one half inch square, including the attachment of the patellar ligament, is removed from the tibia by means of the electrical saw on three surfaces and an osteotome on the upper surface under the ligament. The entire lateral side of the patella is then dissected free by dividing the fascia down to the capsule. The dissection is carried along the lateral side of the conjoint tendon, well up into the area of the fascia lateral to the vastus muscle, this thickened fascia is divided down to the capsule but the operation remains extra-articular. The patella can now be drawn medially. The insertion of the patellar ligament is drawn to the median side of the tibia and distally until the patella lies low in the normal position between the condyles. The periosteum is incised to make two flaps, which are reflected. Then a bony block half an inch square is removed from the tibia in this area. The attachment of the patellar ligament and its block are countersunk in this space, and the periosteum is then sutured over the block. The second graft is fitted into the space at the tibial tubercle. Three sutures of No. 1 chrome catgut act as further stays to hold the medial side of the patellar ligament to the periosteum. The stretched medial fascia is then reefed in the region of the upper margin of the patella. The skin is closed. The fixation is held by means of a cast of plaster of paris for from ten to fourteen days. The sutures are removed at the end of this period, after which the quadriceps muscle can be massaged and weight bearing started with the leg extended. The fourth week after the operation has been performed the knee can be flexed and the quadriceps muscle allowed to contract voluntarily. Free flexion is permitted after six weeks.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Brain, London

60 377 564 (Dec.) 1937

- Epilepsy, Paroxysmal Cerebral Dysrhythmia F A Gibbs E L Gibbs and W G Lennox—p 377  
Somatic Motor and Sensory Representation in Cerebral Cortex of Man as Studied by Electrical Stimulation W Penfield and E Boldrey—p 389  
\*Compression of Chiasma, Optic Nerves and Optic Tracts by Intracranial Aneurysms G Jefferson—p 444  
Observations on Dystrophia Myotonica O Mars—p 498  
Exogenous Cellular Content of Neurohypophysis in Man Under Pathologic Conditions H J Wade—p 525  
Hydrocephalic and Focal Cerebral Symptoms in Relation to Thrombophlebitis of Dural Sinuses and Cerebral Veins C P Symonds—p 531

**Compression of Chiasma, Optic Nerves and Optic Tracts**—According to the clinical classification of Bramwell, intracranial aneurysms may present themselves as apoplectic and paralytic. It is with the latter only that Jefferson deals, and of these only with such as have affected the visual apparatus, that is, by compression of the optic tract, chiasma or optic nerve. Of fifty-three intracranial aneurysms there were sixteen of pure subarachnoid hemorrhage (with nothing to indicate the precise site of the aneurysm), nine aneurysms with paralysis of cranial nerves (usually the third nerve), sixteen saccular (nonfistulous) aneurysms of the internal carotid in the cavernous sinus and twelve basal aneurysms with disturbance of the visual pathways. These last twelve cases are reported after being grouped under four headings: (1) those interfering with the optic radiation and striate cortex, three cases, (2) those compressing the optic tract, one case, (3) those affecting the optic nerves, two cases, and (4) those involving the chiasma, six cases. Of the first group the sudden onset of the disorder and the nonprogressive nature of the clinical pictures leave no doubt that two are examples of thrombosis of the posterior cerebral artery and the third of thrombosis of some part of the middle cerebral. In all these cases the immediate clinical picture was that of subarachnoid hemorrhage. The pathology of the type of aneurysms under discussion seems in no way to differ from that of the so-called berry aneurysm. In general they occur like other aneurysms, at the bifurcation of a large vessel, in this case the internal carotid, perhaps where the ophthalmic artery leaves it or, in the supraclinoid group, at the point where the anterior cerebrals are joined by the anterior communicating branch. The differential diagnosis of a chiasmal lesion rests on the nature of the field defect coupled with the manner of its evolution and the rapidity of its development, the degree of pain associated with the evolution of the visual defect, the coexistence of other neurologic signs, the presence or absence of tubercular or endocrine disturbance and the x-ray evidence. There is only one useful treatment for these cases, and that is carotid ligation.

## Journal of Tropical Medicine and Hygiene, London

41 21 36 (Jan 15) 1938

- Diseases of Skin in Negroes L J A Loewenthal—p 21  
Blood Grouping of Aborigines of the Northern Flinders Ranges in South Australia J B Cleland and T H Johnston—p 26  
Antimony Ointment and Antimony Rashes in Treatment of Bilharziasis F G Cavston—p 27

## Lancet, London

1 123 180 (Jan 15) 1938

- Nutrition and Nutritional Diseases II Role of Vitamin C in Disease L G Parsons—p 123  
Effect of Estrogenic and Other Sex Hormones on Response of Rat to Vasopressin F B Byrom—p 129  
Cavernous Hemangioma of Orbit Successfully Removed by Kronlein's Operation H B Stallard—p 131  
Normal Level of Plasma Bilirubin Janet Maria Vaughan and G A D Haslewood—p 133  
\*The Heart in Diphtheria H N Leete—p 136  
Outbreak of Acute Respiratory Infection in Neonatal Ward Alice E Dickie—p 139

**The Heart in Diphtheria**—The prevalence of severe diphtheria in Hull during the last six years has given opportunities for the observation and study of the toxic effects seen in this

disease. Leete attempts to classify the varying degrees of myocardial damage with a view to prognosis and management of the cases, based on a series of 4,700 cases of faucial diphtheria, which included 461 deaths, mostly toxic, and 452 cases of nonfatal paralysis. The large number of toxic deaths is due chiefly to the high incidence of virulent strains of *Corynebacterium diphtheriae* during this time. The majority of toxic deaths occurred within the first fifteen days of disease. In all these cases the heart is undoubtedly affected, but when death occurs early, during the first week, cardiac phenomena are not prominent and are so overshadowed by the general poisoning that one is inclined to say that these early deaths are due to general toxemia. Later, from the seventh to the fourteenth day of disease, cardiac symptoms and signs are more in evidence and the impression given is that death is due to cardiac or circulatory failure. Late cardiac deaths associated with paralyses in the fifth and sixth week have not been seen. Cardiac signs are slight and similar to those encountered in any very severe toxemia. Severe cases will certainly necessitate seven, eight or even twelve weeks in bed and this treatment must be given. But mild and moderate cases that have not given the indications of toxemia require no further treatment by the end of the fourth week and the patients may safely be sent home. Absolute rest is still all important in the cardiotoxic cases. Whether any drug influences this condition for good is open to doubt. Survival depends on the amount and distribution of undamaged or lesser damaged myocardial tissue and it is difficult to see how the stimulation of this modicum is helpful. Conservation should be the aim, the control of vomiting in toxic cases by dextrose and insulin, and the careful use of morphine to secure the all important rest are indirect methods of cardiac treatment that mean more to the patient than any cardiac drugs.

## Medical Journal of Australia, Sydney

1 47 90 (Jan 8) 1938

- Certain Modern Agents for Detection and Abolition of Susceptibility to Diphtheria C W Adey—p 47  
Diphtheria Immunization J M Dwyer—p 52  
Types of *Corynebacterium diphtheriae* Prevalent in Victoria and Their Clinical Significance T S Gregory—p 57  
Immunity Studies in Diphtheria H L Carruthers—p 59  
Use of Molds and Surface Applicators in Radium Therapy H J Ham—p 62  
Creatine Retention in Blood and Cerebrospinal Fluid A Bolliger and A L Carrods—p 69  
Strangulated Hernia R H Fulton—p 73

## South African Medical Journal, Cape Town

12 1 40 (Jan 8) 1938

- Medicine and Politics K Bremer—p 3  
Inflammation of Entrance to the Orbit W P C Zeeman—p 5  
Puerperal Sepsis at Home and in the Hospital R Theron—p 9  
The Chest Lead in Electrocardiography B Cohen—p 14

## Japanese Journal of Experimental Medicine, Tokyo

15 355 416 (Dec 20) 1937

- Experimental Studies on Metabolism of Urea T Saito—p 355  
Contribution to the Histopathologic Examination of Experimental Syphilis and Yaws in Rabbits H Takahasi—p 401  
\*Supplemental Studies on Virus of Lymphogranuloma Inguinale I Virulicidin of Immune Serum of Rabbits J Okanishi—p 407  
Id II Existence of Virus in Cerebrospinal Fluid of Infected Mice J Okanishi and E G Vio—p 413

**Virus of Venereal Lymphogranuloma**—Okanishi finds that the cerebrospinal fluid of mice infected with the virus of venereal lymphogranuloma is turbid and viscous. It contains numerous cells, from 2,000 to 4,000 in 1 cc of fluid, most of which are lymphocytes. The brains of infected mice were washed with sterile saline solution, and the supernatant fluid was obtained by centrifugation of the washing. Even the intracerebral inoculation of the fluid in a dilution of 1:10,000 into healthy mice caused the typical symptoms of the disease to appear, which fact shows that the supernatant fluid contained the virus in abundance. This method of obtaining the fluid almost free from impurities, yet with a high content of the virus, will greatly aid in the investigations on the virus of this disease.

## Presse Médicale, Paris

46 209 224 (Feb 9) 1938

Limits of Prevention of Tuberculosis in Human Species by Means of Calmette Guérin Vaccine B Weill Haile—p 209

\*Treatment of Painful Crisis of Gastroduodenal Ulcer by Small Doses of Histamine A Jacob and L Israel—p 210

**Histamine in Treatment of Painful Crisis of Gastric Ulcer**—Jacob and Israel direct attention to the histidine treatment of ulcers of the digestive tract which was introduced by Weiss and Aron. After reviewing the theory of histidine deficiency, on which this treatment is based, they show that the ampules of 4 per cent solution of histidine which were utilized for the treatment of gastric ulcers between 1933 and 1935 contained traces of histamine. Because there were indications that these traces of histamine, approximately 0.1 mg per ampule, were the effective factor, the author resorted to the subcutaneous injection of 0.1 mg of histamine in patients with ulcers of the digestive tract. They report the clinical histories of seventeen of the thirty-eight patients with gastric ulcer in whom they employed the daily injection of 0.1 mg of histamine. The histories indicate that the usual number of injections was ten, in some the number was smaller and in others it was larger. In all these cases the pain of the ulcer disappeared, often after the third injection. Discussing the mode of action of the histamine treatment, the authors mention the vasodilatory effect on the capillary system in general, and particularly on that of the gastrointestinal tract, the contracting action on the smooth muscles of the digestive tract and the remarkable analgesic power of histamine. They point out further that, if histamine is so effective against the painful crises of ulcer, it is likely that it exerts also a therapeutic action on the ulcer itself. They think that a cicatrization of the ulcer might be possible but insist that so far this is still in the domain of hypothesis.

## Cuore e Circolazione, Rome

22 160 (Jan) 1938

Velocity of Circulation in Heart Diseases T Sessa—p 2

\*Treatment of Heart Diseases by Antithyroid Roentgen Therapy T Galli—p 32

\*Relation Between Velocity of Circulation and Basal Metabolism in Heart Diseases E Ascarelli—p 44

**Treatment of Heart Diseases by Roentgen Therapy of Thyroid Region**—Galli states that roentgen irradiations of the thyroid region give better results than thyroidectomy in the treatment of heart diseases. The treatment induces a controllable diminishing hypofunction of the thyroids with consequent improvement of the cardiovascular function and of the decompensation of the heart. It is harmless and not followed by myxedema. In administering the irradiations he divides the thyroid region into three imaginary fields which correspond to the right and left lobes and to the isthmus. The irradiations are given through a filter of 0.5 mm of zinc and 2 mm of aluminum. The first six treatments are given daily. The second six are given every other day. Only one field is irradiated at a time. The treatments are given in succession to the first, second and third fields at a dose of 300 roentgens for each irradiation. The first and second series of six treatments each are followed by a period of temporary discontinuation for two or four weeks, according to the absence or appearance of an erythematous reaction and then repeated by the same technic up to a total, which varies from three to four series. If the patient suffers from cutaneous hypersensitivity the treatments are given at longer intervals. The author has treated several cases, one of which is reported. Up to the present, three months after discontinuance of the treatment, the satisfactory results obtained are lasting. The article is a preliminary note.

**Relation Between Velocity of Circulation and Basal Metabolism in Heart Diseases**—Ascarelli determined the velocity of circulation and the basal metabolism of fifty-eight patients who were suffering from heart diseases. In decompensated heart diseases the velocity of circulation is diminished and the basal metabolism is increased. The variations are proportional to the intensity of decompensation. However, there are frequent exceptions. An increase or diminution of the basal metabolism which is proportional to those of the velocity of circulation shows better clinical conditions of the

patients than the presence of a basal metabolism and a velocity of circulation which follow opposite directions in increase and decrease, respectively. The author searched for a direct proportional ratio of the tests and obtained a product which he calls coefficient of velocity of circulation and basal metabolism. The figures of the coefficient are proportional to the evolution of the clinical condition. The coefficient increases as the clinical conditions are aggravated and decreases as they improve. The coefficient is of prognostic value and more reliable for decompensation of the heart than the results of the velocity of circulation or of the basal metabolism by themselves.

## Minerva Medica, Turin

1 85 112 (Jan 27) 1938

Malignant Epidemic Septicemia (M E S) in Natives of Harrar G. Ferro Luzzi—p 85

Functional Correlations of Various Segments of Digestive Tract and Their Relations to Endocrine Secretion of Pancreas G Cozzutti—p 90

\*Zambrini's Ptyaloreaction in Surgery C Scartozzi—p 99

**Zambrini's Ptyaloreaction in Surgery**—Zambrini's reaction for the diagnosis and prognosis of vital resistance, its technic and several of its applications have been described in various medical journals, especially French and Italian and in THE JOURNAL, Nov 14, 1936, page 1679. The test is based on the changes of saliva produced by the addition of a coloring reagent and measured by a standard colorimetric scale. According to the literature, the color of saliva in the light shades (low figures in the scale) indicates a diminished vital resistance or poor evolution of the course of the disease, whereas dark shades (high figures in the scale) indicate good vital resistance and satisfactory evolution of the disease. Scartozzi made the test in fifty cases in which operation was to be performed. He found that before the operation the saliva of patients in normal condition, except for the presence of the surgical condition (hernia or varicocele), gives high figures in the colorimetric scale, while that of patients in poor nutritional and general condition or with disturbed crasis of the blood (appendicitis, gastro-duodenal ulcer and cholecystitis) gives low figures in the scale. The immediate and following postoperative reactions of the patients do not show any relation to the figures given by the test before the operation. The figures in the chromatic scale diminish in all cases after the operation and return to preoperative figures in from three to five days after the operation unless local or general complications develop. There is no relation between the type of anesthesia used in the operation and the behavior of the vital resistance during and after it. The author concludes that Zambrini's test shows the actual vital resistance of the patient but does not have any prognostic value. The reaction takes place by deviations of the  $pH$  of saliva from the neutral point to the acid or alkaline zones. Zambrini's fluid is an indicator. The  $pH$  of normal saliva is in the alkaline zone in Zambrini's scale. A reaction showing increased acidity of saliva shows a tendency to acidosis and a diminished vital resistance. The reaction shows the actual but not the total acidity of saliva. The latter can be ascertained by the sensitivity of the  $pH$  of the saliva to be displaced from one to another zone around the neutral point when a certain number of drops of decinormal solution of acids or bases, which varies from 1 to 14, is added to the saliva. The larger the number of drops that are necessary to displace the  $pH$  of a given specimen of saliva, the more intense the total acidity of the saliva. According to the author the determination of total acidity of the saliva is of value in estimating the final results of the reaction for the vital resistance.

## Polichinico, Rome

45 225 268 (Feb 7) 1938 Practical Section

\*Test of Hippuric Acid in Liver Diseases E Ascarelli—p 225

\*Treatment of Echinococcal Cyst of Lung by Artificial Pneumothorax Case G Roberti—p 233

**Hippuric Acid in Liver Diseases**—Ascarelli followed the behavior of the elimination of hippuric acid through the urine during the first four hours subsequent to administration of 6 Gm of sodium benzoate by mouth as a test for function of the liver in synthesizing hippuric acid. He carried on the

test in ten normal persons and in forty-one patients who were suffering from liver diseases. He found that the total amount of hippuric acid eliminated in the urine of normal persons during the test is about 3 Gm. The amount of hippuric acid eliminated during the test by patients who are suffering from liver diseases with involvement of the liver parenchyma (toxic and hepatic jaundice, cancer or metastases of the liver and atrophic cirrhosis) is diminished. It is almost normal in patients who are suffering from diseases of the biliary tract, with or without jaundice, syphilis, with or without splenomegaly and jaundice, in certain forms of nonatrophic cirrhosis of the liver and in cardiac diseases with a stasic liver. The amount of hippuric acid eliminated during the test varies according to the improvement or aggravation of liver insufficiency. However, low figures of elimination of hippuric acid do not show a fatal evolution of liver diseases, as the results of the test show insufficiency only of the detoxicating function of the liver. The test is of an easy technic and of diagnostic and prognostic value. It is advisable to use it as a complementary test or the function of the liver.

**Echinococcic Cyst of the Lung**—Robert's patient, aged 18 years, showed clinical symptoms simulating tuberculosis. The roentgenograms of the lung were similar to those of cavitation of the tuberculous lung. The sputum gave negative results for tubercle bacilli. In the course of artificial pneumothorax an echinococcic cyst was eliminated during coughing. The patient gave positive results to the Casoni test. The air insufflations were followed several times by coughing and elimination of echinococcic membranes up to complete elimination of the cyst and recovery of the patient as collapse therapy took place.

### Archiv für Gynäkologie, Berlin

165 135 316 (Dec 28) 1937 Partial Index

- Estrogenic Hormone and Metaplasia of Pavement Epithelium of Mucosa of Corpus Uteri F Siebert—p 135  
Influence of Ovarian Function on Lactogenic Action of Hypophysis M Wiegand—p 149  
Preservation of Ovarian Function After Extirpation of Uterus S Siegmund—p 155  
\*Significance of Achylic Chloranemia (Essential Hypochromic Anemia) in Gynecology A Hildebrandt—p 164  
Relations of Gonadotropic Action of Adrenal Cortex to Function of Gonads F Hoffmann—p 177  
Results of Functional Test of Lung During Pregnancy W Borgard and G Effemann—p 183  
Examination of Ovaries and Related Organs During Senility J Wallart and S Scheidegger—p 189

**Significance of Achylic Chloranemia in Gynecology**—Hildebrandt thinks that knowledge about achylic chloranemia is not sufficiently disseminated and that the disorder does not receive the attention it deserves. The varying interpretation of the leading symptoms of the disorder are the reason why so many different terms have been applied to the disorder. In the German literature, achylic chloranemia and essential hypochromic anemia are the most commonly used terms. The disorder is much more frequent in women than in men. Most statistics agree that 80 per cent or more of the patients are women. It is said that the age groups between 30 and 50 years are most subject to it. The patients frequently complain of fatigue, lack of energy, palpitation, tinnitus aurium, attacks of fainting, painfulness of the bones, loss of weight and gastrointestinal disturbances, such as lack of appetite, flatulence, constipation or, more frequently, diarrhea. Other symptoms are burning sensations along the esophagus with difficulty in swallowing, burning of the tongue, paresthesias, particularly in the terminations of the extremities, and even slight disturbances in walking, all of which are symptoms that in a more severe form appear in pernicious anemia, to which achylic chloranemia seems related. The objective symptoms are likewise similar to those of pernicious anemia: there are changes in the lingual mucosa, trophic disturbances in the appendages of the skin, particularly of the nails, and rhagades. The skin is often pale white. The chief symptom of achylic chloranemia is a disturbance in the secretion of the gastric juice. Examination of the blood is of great importance for the diagnosis of the disease. The principal symptom is the hypochromia. The number of

erythrocytes is often decreased. After pointing out that achylic chloranemia may be accompanied by circulatory disturbances, the author gives his attention to menstrual anomalies and genital hemorrhages that may appear during this type of anemia. He says that Schulten, on the basis of fifty cases, estimated the incidence of severe menstrual hemorrhages in achylic chloranemia at approximately 75 per cent. He himself, having observed only six cases, is unable to give definite percentages, but he gained the impression that menorrhagia and metrorrhagia not only occur in achylic chloranemia but may dominate the clinical picture. He describes the clinical histories of patients in whom this was the case, but he also says that menstrual anomalies were absent in two of the cases of achylic chloranemia that he observed. Iron therapy is the method of choice in achylic chloranemia. He administers reduced iron, giving 1 Gm three times daily, and in order to intensify the action of the iron he also gives hydrochloric acid. The iron therapy must be continued until a considerable improvement is noticeable in the blood status. The menstrual disturbances or genital hemorrhages that may exist improve simultaneously with the blood status under the influence of the iron therapy.

### Klinische Wochenschrift, Berlin

17 140 (Jan 1) 1938 Partial Index

- Vitamin C Balance in Human Subjects K Wachholder—p 5  
Significance of Cutaneous Vessels for General Circulation P W Springorum—p 11  
\*Action of Sulfanilamide Compounds on Causal Organism of Gonorrhea H Felke—p 13  
\*Pancreatropic Hormone of Anterior Hypophysis in Treatment of Acute Pancreatitis O Wustmann—p 16  
Therapy of Malignant Diphtheria with Vitamin C and Adrenal Cortex Extract S Werner—p 17  
Diagnosis of Septic Arterial Embolisms with Especial Consideration of Conditions in Endocarditis Lenta E Ask Upmark—p 20  
Electrocardiogram in Ostitis Fibrosa Cystica Generalisata (Recklinghausen) C Korth and H Hecht—p 21

**Action of Sulfanilamide in Gonorrhea**—Felke reports investigations that were conducted in order to explain the therapeutic action of some sulfanilamide preparations in gonorrhea. He finds that nearly all investigators agree that the pathogenic organisms are somehow impaired by the sulfanilamide and thus are made vulnerable for the defense powers of the organism. The sulfanilamide preparations that he used were several preparations identified by numbers. In summarizing, he says that the sulfanilamide compounds that are effective in the therapy of gonorrhea inhibit the growth of gonococci in the test tube when used in the same concentrations that are reached during the therapy in the organism. In some strains of gonococci there is no inhibition of growth with these concentrations, but considerably more sulfanilamide has to be added in order to inhibit growth. These sulfanilamide-fast strains of gonococci generally are derived from patients who are resistant to this chemotherapy. From the results of control cultures on patients it is concluded that this different behavior of the gonococci is a result of the immunity status of the organism. Strains of gonococci can be made sulfanilamide fast in culture experiments. Testing strains of gonococci obtained from patients in culture mediums that contain sulfanilamide preparations is occasionally helpful in deciding on the best chemotherapy.

**Pancreatropic Hormone in Acute Pancreatitis**—After discussing the disturbances that exist in acute pancreatitis, Wustmann directs attention to the discovery by Anselmino and his associates of a pancreas-stimulating substance in the anterior lobe of the hypophysis. Inspecting microscopic preparations of the pancreas of animals that had been treated with the aforementioned pancreatropic hormone the author observed a considerable hyperemia and reasoned that, if the pancreatropic substance has such an effect it might be helpful in acute pancreatitis. For the last four years he has endeavored to obtain clinical experience with regard to the course of acute pancreatitis when the pancreatropic anterior pituitary hormone was employed as an adjuvant in the treatment. As soon as a case has been diagnosed as pancreatitis, the patient is subjected to a continuous drop infusion of physiologic solution of sodium chloride. One ampule of the substance (as fresh as possible) is introduced into the injection tube every eight hours during



the first day. From the second day on, it is given every six hours in the form of tablets, until the fasting blood sugar and the diastase values have been normalized or until improvement is noticeable. The author employed this auxiliary endocrine treatment in nine patients with acute pancreatitis. The results were encouraging. The blood sugar and diastase values decreased rapidly, and necessary interventions on the biliary system could be made early.

### Medizinische Klinik, Berlin

34 135 (Jan 7) 1933 Partial Index

Supposed Causes of Greater Incidence of Rickets in Recent Years  
E Rominger—p 1

\*Lichen Urticatus of Exogenic Origin F Hamburger and A Dietrich—p 4

Influence of Environment on Size of Heart H Stieve—p 5

Does Specific Involvement of Regional Lymph Nodes Occur in Tertiary Syphilis? J Zange—p 9

New Methods in Treatment of Gonorrhea H Lohe K Scholzke and D Zurn—p 11

\*Trombidiosis H Aretz—p 15

Hormone Treatment of Gonadal Insufficiency in Men with Consideration of the Synthetic Testosterone Propionate Perandren R Pick—p 17

**Lichen Urticatus of Exogenic Origin**—Hamburger and Dietrich say that lichen urticatus, which is comparatively frequent in children, is generally ascribed to enterogenic causes. Eggs, milk, meat and various types of vegetables have been held responsible for it, but the authors show that bites of insects, particularly bedbugs, are often responsible for this type of skin disorders. They were able to demonstrate that among twenty-four children with lichen urticatus there were seventeen, or 70 per cent, who reacted to bites from bedbugs with the characteristic manifestations of lichen urticatus. Tests on sixty-six children without lichen urticatus revealed that only twenty-four or 36 per cent, were sensitive to bites from bedbugs. In many cases of lichen urticatus the causal significance of bedbugs could be definitely demonstrated by the fact that the children had a recurrence immediately after their return home. However, this was not the case when the bedbugs had been exterminated or the children were taken to a home that was free from bedbugs. The authors point out that it is an old established fact that there are persons who have a sensitivity to bites from bedbugs and they think that for this reason it is the more surprising that for the last two or three decades lichen urticatus has been so generally ascribed to nutritional factors. In experimental studies they were never able to elicit lichen urticatus by foods. They do not question that a typical urticaria may be of enterogenic origin, but they doubt that lichen urticatus originates in this manner. They emphasize that lichen urticatus in children is not of enterogenic but rather of exogenic origin. In the majority of cases it is probably caused by bites from bedbugs, but fleas or other insects may also be responsible.

**Trombidiosis**—Aretz says that trombidiosis is caused by mites of the genus *Trombicula*. The species *Trombicula autumnalis* seems to be the one which causes trombidiosis in Germany. Of the four developmental stages of the mite, only the larva lives above the ground and only the larva plays a part in the causation of trombidiosis. The larva is yellow to scarlet red, its length varies between 0.27 and 0.68 mm and its width between 0.19 and 0.49 mm. It has three pairs of legs, the mandibular pair having especially powerful claws. The larva becomes a parasite on birds, mammals or human subjects and with powerful mandibular claws penetrates the upper horny layer and introduces a salivary secretion, which transforms the upper layers in such a manner that they can serve as food. After sufficient food has been absorbed, the larva leaves the host. Experiments conducted by Fuhs and also by the author revealed that from three to four hours after the attack by the larva itching is felt and a small papule, from 1 to 2 mm in diameter, can be observed. Rubbing increases the itching. The papule becomes gradually larger and reaches its maximum after twenty-four hours. At the apex of the papule there may be a vesicle that is filled with clear fluid. After this vesicle dries up a tiny blood crust is visible. The extremely slow regression of the papule, which requires about fourteen days, begins on the second or third day. In regions where the skin is delicate the papules may become hemorrhagic. Itching persists until the papule has completely disappeared. Impairment of

the general condition exists only in severe cases. To be sure complications in the form of pyoderma may develop from scratching. Although severe forms of trombidiosis may develop in the tropics, the trombidiosis of the temperate zone has a favorable prognosis. The treatment is directed chiefly against the itching sensation. Application of soft (green) soap has been found helpful by Fuhs, von Mallinckrodt recommends a sulfur mixture and Hoffmann advises the use of ricin (ethyleryglycol monobenzoate) and a 20 per cent perugen ointment. The author obtained satisfactory results with frequent baths and with a simple zinc mixture. He describes the groups of cases that came under his observation.

### Strahlentherapie, Berlin

60 541 720 (Dec 18) 1937 Partial Index

Actual Questions of Short Wave Therapy in Gynecology I von Koenigsmuth Buben—p 541

\*Experiments with Rotation Irradiation F Dessauer K Lion and M Gokmen—p 645

Dosimetry for Radium Packs E Hasche J Bolze L von Borzok and D von Keiser—p 598

Gynecologic Short Wave Therapy H Korb—p 615

Röntgen Irradiation of Benign Bone Diseases W Lahm—p 631

\*Foundations of Dosage in Rotation Irradiation R du Mesnil de Rochemont—p 648

\*Roentgen Therapy of Hyperthyroidism W von Wieser—p 712

**Rotation Irradiation**—Dessauer and his associates describe a method which makes it possible to apply greatly increased depth doses without increasing the doses that reach the skin and the covering layers. They admit that this method, namely rotation irradiation, has been suggested several times before but has never been systematically developed. The authors experimented with this rotation method for the last two years and gained the impression that the improvement obtained with it is so considerable that, as soon as the rotation claims have become available, the method will be employed. If, for instance, a complete focal dose can be applied to a tumor of the sella turcica without the hair falling out and if in case of a complete Coutard irradiation there is hardly any reaction of the skin, this is such a relief for patient and physician that it will not be dispensed with. The essential factor of rotation irradiation is to apply the total dose to the disease focus through as large a body surface as possible. To accomplish this the body of the patient is placed so that it can be rotated and adjusted in such a manner that the focus of the disease is in the axis of rotation. If the body of the patient is slowly rotated, the rays reach the focus of the disease uninterruptedly (because the focus remains within the axis), but the surface layers move so that the cone of rays constantly reaches different layers. Another advantage of the rotation method is that it permits a closer approach to the object to be irradiated and thus makes possible a better utilization of the ray energy, so that the irradiation time can be greatly reduced. The authors further discuss dosimetry, the structure of the apparatus and the technique of the irradiation by rotation.

**Dosage in Rotation Irradiation**—Du Mesnil de Rochemont discusses the geometric factors in rotation irradiation and the spatial distribution of the dosage that is obtainable under different practical conditions. He emphasizes that this knowledge is the basis of the practical application of the rotation method of irradiation regardless of the manner in which the rotation is accomplished, whether, as was suggested by Dessauer and done by this author, the patient is rotated around the stationary x-ray tube or the x-ray tube is turned around the patient as done by Flax. The distribution of the dose in the organism during rotation irradiation is determined by the difference in exposure time of the skin and of the focus at which the rays are directed. The author explains the computation of this difference in the time of exposure and clarifies the mathematical formulas used in this computation on a geometrical diagram. He also shows groups of curves that have been computed with these formulas and directs attention to the superior depth action and other advantages of rotation irradiation.

**Roentgen Therapy of Hyperthyroidism**—According to von Wieser roentgen therapy of hyperthyroidism is successful in only 60 to 70 per cent of the cases. He ascribes the considerable percentage of cases that fail to respond to roentgen treatment to the fact that, besides the primary form of hyper-

thyroidism, there are also secondary forms. There is one which develops as a sequel to cerebral disturbances in the sphere of the sympathetic nerve centers. In this connection he cites a case in which a previous lethargic encephalitis was the cause of a secondary hyperthyroidism. This case did not respond to irradiation of the thyroid, but as soon as the sympathetic centers in the brain were irradiated there was improvement. The author thinks that many failures of roentgen therapy in hyperthyroidism are due to the fact that the causes of the disorder have not been correctly recognized. He shows that a certain functional disturbance of the hypophysis resembles hyperthyroidism and that roentgen treatment of the thyroid fails in these cases. The fact that a number of such cases had been referred to him recently for irradiation of the thyroid induced him to discuss this problem. He says that, although these patients had an increased basal metabolism their obesity should have suggested the possibility of an erroneous diagnosis. In all these cases, determination of the specific dynamic value had been neglected. If this had been done, it would have been discovered that the specific dynamic value was not increased as in hyperthyroidism but was decreased. The author mentions two other forms of secondary hyperthyroidism that which results from infectious diseases, particularly tuberculosis, and that which is caused by excessive intake of thyroid extract or of iodine. The latter form usually improves when the intake of these substances is discontinued. In the concluding summary the author emphasizes once more that before roentgen treatment is begun in hyperthyroidism the cause of the disorder should be ascertained, for, if the process is one of the secondary forms, the treatment must be different than in the primary form. Roentgen irradiation of the thyroid is not effective in the secondary forms.

### Zeitschrift für klinische Medizin, Berlin

133 91 222 (Dec. 3) 1937 Partial Index

Sleep, Blood Sugar and Acid Base Economy C. Dienst and B. Winter —p. 91

Estimation of Changes in Electrocardiogram in Diseases of Myocardium W. C. Meyer —p. 95

\*Central Nervous Regulation of White Blood Picture. Studies on White Blood Picture After Spinal Puncture C. H. Behr —p. 132

Vitamin A and Cholesterol Content in Its Relation to Elimination of Vitamin A in Urine. Demonstration of Vitamin A in Exudates, Duodenal Juice and Feces F. Grant —p. 168

\*Resistance to Insulin in Diabetes R. Herbst —p. 186

\*Action of Crystalline Insulin on Blood Pressure, Respiration and Electrocardiogram as Well as Modification of These Effects by Metrazol A. Heinrich and Hildegard Süssner —p. 203

**Central Regulation of White Blood Picture**—Behr reviews the literature on the central regulation of the white blood picture and then says that he observed that spinal puncture produces an increase in leukocytes. He believes that the degree and the type of changes in the white blood picture are to a certain extent dependent on the nature of the changes in the central nervous system. His observations were made in sixteen cases. The leukocytic blood picture was examined before, immediately after and twenty, forty and sixty minutes after the spinal puncture. The course of the leukocytic reaction and particularly the qualitative changes in the white blood picture permit a differentiation into three groups. To the first group belong four patients who had no pathologic changes in the central nervous system. The spinal puncture was made in order to verify the diagnosis. In these cases the spinal puncture produced only a slight increase in leukocytes. The second group, of four patients, had localized noninflammatory processes of the central nervous system. In this group the increase in leukocytes was more pronounced. It involved primarily the lymphocytes. The third group, of eight cases included those in which the changes in the central nervous system could be traced to inflammatory infectious processes, especially of a syphilitic nature, and in which the meninges were involved. In these cases the spinal puncture was followed by a strong increase in leukocytes. The qualitative analysis of the blood picture revealed a deviation in the myeloid direction. The author considers these observations interesting because the behavior of the leukocytic reaction after a spinal puncture permits some conclusions about the type of changes in the central nervous system. Inflammatory changes become manifest by a myeloid tendency in the leukocytic reaction, whereas purely degenerative processes are indicated by a noticeable

lymphatic tendency in the leukocytic reaction. On the other hand, these observations seem to be a further proof for an autonomic regulation of the white blood picture. However, it is still a question whether a separate center exists for this regulation.

**Resistance to Insulin in Diabetes**—A review of the literature on the resistance to insulin reveals no agreement about the nature of this phenomenon. The observations which Herbst made on the problem of resistance to insulin are based on sixteen cases. He emphasizes that the estimation of the efficacy of insulin cannot be based on the behavior of the blood sugar during fasting or on the total daily elimination of sugar. A patient can be regarded as resistant to insulin only if, after an injection of insulin, the blood sugar is reduced less than is generally the case under comparable conditions. Renal diabetes cannot be regarded as resistant to insulin. Its behavior toward insulin is just like that of the normal organism. The persistence of the glycosuria in spite of the reduction of the blood sugar is caused by the reduced renal threshold. The author further gives his attention to the extra-insular, epinephrinogenic diabetes. This type of diabetes, which is caused by a hyperfunction of the counterregulation, is generally not resistant to insulin. Only a great increase in the action of epinephrine may temporarily impair the function of insulin. Hepatogenic diabetes likewise cannot be regarded as resistant to insulin. Resistance to insulin in case of hyperglycemic diabetes due to insulin deficiency is caused by inactivating substances in the blood, by the influence of fever and especially by the effects of acidosis. From the clinical point of view it is possible to differentiate two types of resistance to insulin, those without and those with acidosis. In many cases an apparent resistance to insulin is simulated by an unsuitable distribution of the doses of insulin. In case of coma with resistance to insulin it is possible to break the resistance by the intravenous administration of alkali. This measure is effective even if the largest doses of insulin have proved ineffective.

**Action of Crystalline Insulin on Blood Pressure and Electrocardiogram**—Heinrich and Süssner state that the literature contains contradictory reports about the effects of insulin on blood pressure, respiration and the electrocardiogram. It has been shown that the various brands of insulin available on the market are not of a uniform nature and that some contain substances which act on the circulation. The authors suggest that some of the reported results might be due to these substances. They decided to study the action of crystalline insulin. Their tests were made on rabbits. They were able to show in these animal experiments that, following the injection of crystalline insulin, there is always a decrease in blood pressure, which is not a result of the hypoglycemia but of the crystalline insulin itself. Bradycardia and a lowering of the T wave was likewise observed in many instances. Once an arrhythmia was registered. All these manifestations were chiefly the result of the crystalline insulin. Only the repeatedly observed acceleration in the respiration must be regarded as a manifestation of hypoglycemia. The authors further investigated to what extent the changes that are elicited by crystalline insulin can be influenced by medicaments. They found that when metrazol was administered the decrease in blood pressure which lasted only seconds, was followed by an increase that persisted for minutes. Electrocardiographic tests frequently revealed that the T wave, which had become lower under the influence of crystalline insulin, showed a tendency to rise again. The effect of metrazol on the frequency varied in that acceleration or retardation occurred. The content of blood sugar was not influenced by metrazol. The authors discuss the mode of action of metrazol in the hypoglycemia that is elicited by crystalline insulin and point out that, since the described circulatory action of metrazol is of only limited duration, repeated injections of metrazol can be recommended for the prolongation of the hypoglycemia during insulin shock therapy. The combined application in one session of insulin shock therapy and metrazol shock therapy does not seem advisable at least as far as can be estimated from observations on animals. However, no objection can be made regarding the circulation to the alteration between insulin shock and metrazol shock at daily or longer intervals.

## Wiener medizinische Wochenschrift, Vienna

88 113 144 (Jm 29) 1938 Partial Index

- Chronic Polyradiculitis L Bieder—p 116  
 Symptomatology of Narcolepsy and Related Conditions L Deutsch—p 120  
 \*Attempt at New Therapy of Narcolepsy L Fessler—p 125  
 Rhythmic Myoclonia of Musculature of Pharynx with Anomalies of Respiration and Heat Regulation Altra Grunwald—p 127  
 \*Relations Between Mumps and Later Nervous Disturbances Hermine Lichtenstern—p 130  
 \*Cervical Group of Facial Neuralgias J Wilder—p 136

**New Therapy of Narcolepsy**—Fessler points out that for symptomatic narcolepsy that is not caused by tumors, syphilis or trauma there is as yet no satisfactory treatment. Nitschke's observation that hibernation of hedgehogs could be prevented by the administration of irradiated ergosterol induced Fessler to try it for patients with narcolepsy. He reports the histories of two cases in which he resorted to this medication. In the first case no treatment of any kind was given during the first eight days and there was no change in the narcolepsy. Thus the objection is answered that change in surroundings alone will produce a considerable improvement in narcolepsy. After the eighth day the patient was given ten drops twice daily. During the first two days of this medication there was no change, but during the subsequent nine days the patient was entirely free from attacks, although there still were times when he felt tired. On the twelfth, sixteenth and twenty-third days after the onset of the treatment, one attack each occurred. After the patient's return to the home surroundings the attacks of narcolepsy recurred when no irradiated ergosterol was taken, but they became much less frequent when it was taken again. For a more objective estimation of the effect of irradiated ergosterol, complete abstinence from alcohol was enforced for weeks. It was found that this reduced the incidence of the attacks of narcolepsy, but only when irradiated ergosterol was given at the same time did the attacks stop completely. In order to avoid excessive dosage and its possible dangers, the calcium content of the serum was kept under constant supervision; it remained approximately normal. In the second case the medication with ergosterol was not quite as effective as in the first. The second patient was much older than the first one and the treatment was begun with smaller doses. When complete abstinence from alcohol was enforced and comparatively large doses of irradiated ergosterol were given, the attacks of narcolepsy ceased.

**Mumps and Later Nervous Disturbances**—Lichtenstern reviews the literature on the later sequelae of mumps and then reports her observations on 664 women and 520 men who were admitted to a hospital for nervous diseases. Of the women 105 and of the men forty seven had supposedly had mumps. It was the author's aim to determine whether there are diseases which are especially frequent in patients who have had mumps. She realizes that the number of cases of mumps is too small to allow definite conclusions, but she nevertheless investigated the possibility of a correlation between mumps and later disorders. Summarizing her observations she says that in the patients who had had mumps she noted a high incidence of hepatic disorders, diseases of the gallbladder, infectious diseases, appendicitides, articular disturbances and neurasthenic syndromes. A relative predominance of chronic cerebral or meningeal symptoms, particularly of headache, was not observed. Endocrine disturbances were likewise not especially frequent. In the men who had had mumps, sexual disturbances and arteriosclerosis were even less frequent than could have been expected on the basis of averages. The relatively higher incidence in infectious diseases was to be expected if it is considered that persons who are more susceptible to infections are also more subject to mumps. In view of the presumably different etiology of arthritides, their comparatively high incidence is not readily understandable. Discussing the great frequency of cholecystopathies and of hepatic disorders, the author says that only hypothetical considerations are possible so far. She suggests that the occurrence of a primary impairment of the pancreas during epidemic parotitis might result in a secondary impairment of the liver.

## Problemy Tuberkuleza, Moscow

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**Tuberculosis of the Tonsils**—Libin and Travushkina state that, in the belief of most authors, the tonsils of patients with pulmonary tuberculosis become secondarily infected through the sputum. Primary tuberculous infection of the tonsils is believed to occur rarely. The authors found on necropsy of 3,509 cases of pulmonary tuberculosis 605 cases of tuberculosis of the tonsils among 936 cases of tuberculous lesions involving the buccal cavity. The authors made a microscopic study of the tonsils in fifty necropsies in which death had resulted from pulmonary tuberculosis. A clinical diagnosis of tuberculous infection of the tonsils was made in two cases in this group. Anatomic diagnosis was made in seventeen cases. On microscopic observation, a diagnosis of tuberculous infection was made in twenty-seven cases in the absence of any macroscopic lesion. The difficulty in making a clinical diagnosis of tuberculosis of the tonsils is due to the fact that the process develops from the interior of the organ and spreads toward the periphery rather than in the reverse order. This fact likewise suggests that the infection takes place by way of the blood supply rather than by the sputum containing tubercle bacilli. The hematogenous origin of the infection is further supported by the fact that the microscopic evidence of tuberculosis was bilateral in all their cases but one. The authors conclude that tuberculous infection of the tonsils in patients with pulmonary tuberculosis is a frequent occurrence, even though it is not recognized with great frequency clinically or at necropsy. They believe that tonsillar tuberculosis is of considerable clinical importance so far as it contributes to the general intoxication of the organism and gives rise to metastases. The microscopic form is predominantly that of productive inflammation with but few demonstrable tubercle bacilli or with none. The exudative form with ulcerative lesions, considerable necrosis and numerous tubercle bacilli was encountered but rarely. The question of the mode of infection cannot be determined from microscopic studies. The hematogenous route probably plays the most important part in the tuberculous infection of the tonsils.

**Erythema Nodosum as Allergic Reaction in Tuberculosis**—According to Tsukerman and Rybak, a number of observers pointed out that children suffering from erythema nodosum react to tuberculin with great intensity. Thus the sensitivity to tuberculin in such children was in many instances increased to the point of reacting to dilutions of 1 1,000,000, whereas reactions to dilutions of 1 100,000 or 1 1,000 is the rule. The sensitivity to tuberculin is moderate or negative before the appearance of the eruption. With the rise of the temperature and the appearance of the eruption it becomes greatly heightened. The eruption thus coincides with hyperallergy. At the same time pathologic increase of roentgenologic shadows at the root of the lung become demonstrable. The authors emphasize that erythema nodosum is not to be considered a tuberculous lesion. From an anatomic point it is not a tuberculous process. While children with erythema nodosum react to nonspecific bodies as well, such reactivity is transient, whereas the reactivity to tuberculin persists. In fourteen children recently recovered from erythema nodosum the authors found a positive reaction to the tuberculin. In twelve it was intense, exhibiting vesicles on the surface of the papules in some. A diagnosis of tuberculous infection was made in all of the group. Of these eight had tuberculous bronchoadenitis, two had pulmonary tuberculosis, two developed pleurisy with effusion, one tuberculous meningitis and one in allergic state. Roentgenologic examination showed tuberculous infection in all. Contact with open cases of pulmonary tuberculosis was found to have existed in seven. The authors conclude that every case of erythema nodosum in a child must be regarded as one in the acute stage of tuberculous allergy and should be observed as such by the tuberculous dispensary.

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## EPIDEMIC DIARRHEA OF THE NEWBORN

WILLIAM H. BEST, M.D.  
Deputy Commissioner, Department of Health  
NEW YORK

In July 1934 the attention of the department of health was called to some sort of epidemic among the newborn babies in one of the New York City hospitals. This information was given by the father of one of the babies who had died and was to the effect that many of the babies at the hospital were ill and many dying. We investigated this complaint and to our dismay found an epidemic of enteritis of a devastating nature in progress among the newborn babies. Before it had ended, seventy-two, or 18 per cent of the babies in the nursery had been involved, of whom thirty-two died, a mortality of 45 per cent. Postmortem, pathologic and bacteriologic examinations gave no clue as to what we were dealing with.

Since the discovery of this outbreak of diarrhea among the newborn, although we have become quite familiar with the clinical syndrome, its etiology and its mode of transmission still remain in the realm of speculation. Was it possible that this condition was occurring in other institutions from time to time without recognition? Was it possible that similar outbreaks had occurred in other parts of the country? There was, indeed, a paucity of reports in the literature. In fact, even up to the present there have been, so far as we are able to ascertain, only about eight references to a condition similar to this one. In an effort to answer this question, the Sanitary Code of the City of New York was amended, making diarrhea of the newborn in lying-in institutions reportable, and death certificates from institutions were checked daily. Whenever there seemed to be a disproportion in the number of deaths of infants under 4 weeks of age to that which might be normally expected we made inquiry, irrespective of what was given on the certificate as the cause of death. Investigations, as a result of these procedures, have uncovered a trail which has led us a long way and, while much remains to be revealed, we believe that we are dealing with an acute communicable disease of the newborn.

From July 1934 to the end of December 1937, we have studied twenty-seven outbreaks, comprising nineteen different hospitals. Fourteen hospitals experienced only one outbreak, three hospitals had two, one hospital three and one hospital as many as four outbreaks during this period. The time interval in the hospitals with multiple outbreaks would not indicate any relationship

between the first and subsequent ones. From July 1934 to December 1934 there was one outbreak with seventy-two cases and thirty-two deaths, during 1935 seven outbreaks with 205 cases and ninety-six deaths, during 1936 ten outbreaks with 245 cases and 121 deaths, during 1937 nine outbreaks with 228 cases and 107 deaths. There were nine outbreaks which had their beginning in the winter months (December 21 to March 21), four outbreaks in the spring months (March 22 to June 21), nine outbreaks in the summer months (June 22 to September 21) and five outbreaks in the fall months (September 22 to December 21). This distribution would not indicate a seasonal or climatic predilection. In these twenty-seven outbreaks we have followed the postnatal course of 5,082 live born babies. Of this total, 750 developed the disorder, a morbidity rate of 14.7 per cent. Of the 750 babies attacked, 356 died making a mortality rate of 7 per cent and case fatality rate of 47.5 per cent.

### SYMPTOMATOLOGY

The infant appears to be healthy and thriving. Suddenly it is noted that the child is unusually drowsy and if awakened gives a short, feeble cry. The temperature may be slightly elevated, from 99 to 100 F. Coincidentally or within a few hours, loose, watery, yellowish stools develop, less frequently yellowish brown or greenish, with however no mucus, blood or pus. Occasionally vomiting is present. Distention is also a frequent symptom. Watery stools of increasing frequency occur and weight loss amounting to as much as a pound within twenty-four hours may be noted. The general appearance of the baby changes from that of a previously healthy nursing to that of a markedly dehydrated and marantic infant in shock. In severe cases death may occur in a day or two, in the less severe cases the disease may run a course of from five to seven days, finally terminating in death or going on to recovery in about 50 per cent of the cases. A terminal bronchopneumonia has been noted in some of the fatal cases, several have been complicated by an otitis media which developed late in the course of the disease.

In brief, then, there is a symptom complex of a severe intestinal toxemia with acute onset, accompanied by drowsiness, watery yellowish stools, abdominal distention, marked dehydration, rapid loss of weight and shock.

### EPIDEMIOLOGY

This disorder seems definitely limited to the newborn period, the susceptible age being up to 4 weeks. Contacts discharged home from the affected nurseries and later becoming ill were returned to the hospital and admitted to the regular pediatric ward. At no time did the condition spread to older children in the ward. In no instances have the adult attendants in the affected

nurseries become infected. Sick infants discharged home as well as babies becoming ill at home after discharge have in no instance communicated the infection to older members of the family. After the first case, the spread in the nursery is rapid, usually involving infants in adjacent bassinets. This fact and the fact that infants have come down with the disorder in as short a time as one or two days after having been placed in a nursery where cases had developed, would seem to indicate as a rule a very short incubation period. However, there was one instance in which the infant was taken ill twenty days after discharge from the hospital. The majority of the cases developed between two to six days after the presumed exposure. It not infrequently happened that there was a cessation of new cases for several days, even for a week, only to start up afresh. During this remission period new babies were admitted to the nursery, thereby providing further fuel for the perpetuation of the epidemic. The outbreaks were never fully controlled until the maternity service involved was completely closed to new admissions and, in the course of time, the babies discharged and the obstetric and nursery quarters renovated. Sex and race do not appear to be a factor. Since, in many hospitals, supplementary feedings and fluids are given, at least during the first week, all the pathways for the introduction of infection are open alike to the breast fed as well as the artificially fed baby. This, undoubtedly, accounts for the fact that there was no marked difference in the incidence among breast fed and artificially fed babies.

#### BACTERIOLOGY

Bacteriologic investigation in our laboratory has thus far failed to reveal a common etiologic agent. Stools from cases and bowel contents taken post mortem disclosed a variety of organisms, namely, *B. coli*, atypical *B. coli*, Flexner bacillus and enterococcus (streptococcus). To complicate the picture further, in outbreaks outside New York City other organisms have been reported. Jampolis and his associates reported a *B. mucosus capsulatus* and a nonhemolytic streptococcus from the Michael Reese Hospital, Chicago, in 1930. At Johns Hopkins Hospital, Schwentker, in a personal communication, reported a *B. dispar* in 1935, and Park and Christie a non-lactose fermenting *B. coli* in 1936. A monilium was reported by Durand from the Providence Hospital at Seattle in 1935. In routine cultures of nasal and pharyngeal secretions and of stools of sick babies and mothers and adult maternity service personnel, we have failed to isolate a common organism among the sick babies or an organism common to both the adults and the sick infants. Virus studies made at our laboratory and at the Rockefeller Institute have thus far failed to throw any light on the nature of the morbid agent. May it not be an organism or even a variety of organisms nonpathogenic for older individuals but pathogenic when introduced into the intestinal tract of the newborn? This is put merely as a question.

#### PATHOLOGY

It is surprising that such a severe intestinal toxemia can produce so little pathologic change. While some congestion of the superficial vessels in the bowel, congestion of Peyer's patches and occasional hemorrhagic areas were noted, no constant characteristic pathologic condition, either macroscopic or microscopic could be established. Otitis media, parenchymatous degeneration

of the liver and kidneys, bronchopneumonia and congestion of the dural and meningeal vessels were occasionally found.

#### COMMENT

To the health officer, these institutional epidemics present a serious problem, since they affect an age group in which the mortality rate has shown the least reduction. The reduction in the infant mortality rate during the past quarter of a century in New York City is about 61 per cent. However, the reduction in deaths under 1 month of age during the same period has been only about 28 per cent. The infant mortality rate for diarrheal conditions from 1 month to 1 year a quarter of a century ago was 31 per thousand live births, whereas last year it was 3.6, a reduction of 90 per cent. The infant mortality rate for diarrheal conditions under 1 month for the same period was 2.5 per thousand live births, whereas last year it was 1.9, a reduction of only 24 per cent. As a matter of fact, in the past ten years an actual increase is shown. It is apparent that, if further progress is to be made in the reduction of infant mortality, measures to control or prevent these epidemics must be instituted. With the uncontrolled expansion of lying-in institutions and the mass collective care of the newborn in nurseries, with the great variety of institutions—municipal, voluntary and private, large and small—and added to this a lack of exact knowledge of the etiology and mode of transmission, the development of control measures becomes a complicated problem.

#### CONTROL MEASURES

First, as to the control of the outbreak in an institution. We have learned from experience that temporizing in the hope that the disorder will abate is of no value. Measures and procedures customarily employed in communicable diseases, namely, the immediate isolation of suspected cases, the closing of the maternity and newborn services involved until all the infants have been discharged and thorough cleansing and renovation of the nursery, constitute the speediest way to control an outbreak.

Second, and more important, is to prevent the outbreaks from occurring. This necessitates, in many hospitals, a radical change in the physical setup and the techniques in the obstetric and newborn services.

The basic principle involved is that everything coming in contact with the baby's mouth or nose should be in a surgically aseptic condition. Therefore the obstetric and nursing techniques must be set up to this end. With this in mind and after numerous conferences with leading obstetricians, pediatricians, representatives of the county medical societies, the Academy of Medicine and various hospital medical and nursing groups, regulations governing lying-in institutions and nurseries for the newborn were established.

#### THE REGULATIONS

*Lying-in Institutions and Newborn Nurseries Regulated*—No person, organization or corporation shall conduct, maintain or operate a lying-in institution or a newborn nursery otherwise than in accordance with the regulations of the Board of Health.

*Lying-in Institutions and Newborn Nurseries Defined*—The term lying-in institution as used herein shall be deemed to mean any hospital, institution or place, excepting private homes in which pregnant women are cared for and delivered of babies. The term newborn nurseries as used herein shall be deemed to mean any room, rooms or ward in such hospitals, institutions or places, excepting private homes, in which newborn babies are cared for or treated.



**REGULATION 1 Maternity and Delivery Room Units**—(a) There shall be adequate isolation quarters for ill or infected mothers in all lying-in institutions. A mother shall be deemed infected if (1) she is a carrier or suspected carrier of, or affected with, a communicable or suspected communicable disease or condition, or (2) if she nurses an ill or infected baby, or (3) if she is not delivered in a lying-in institution in which she is afterward cared for. Ill or infected mothers shall be immediately isolated.

(b) There shall be provided and maintained a separate labor and delivery room unit with separate equipment for the delivery of normal or clean operative obstetric cases and another such equipped unit for the delivery of ill or infected mothers. If the latter unit with separate equipment is not provided and the delivery of an ill or infected mother is carried on in the unit used for normal or clean operative obstetric cases, the same shall be immediately and thoroughly cleansed, closed for twenty-four hours and the equipment resterilized.

(c) The maternity ward or unit shall be maintained separate and apart from any medical or surgical service not intimately concerned with the delivery or puerperal period.

(d) Gynecologic operative procedures shall be prohibited on maternity services, except such as are intimately concerned with the delivery or the puerperal period.

(e) Equipment of delivery rooms shall be limited to instruments and supplies necessary for immediate use. All other equipment and supplies shall be kept in outside supply rooms.

(f) All labor and delivery room units shall be equipped with proper apparatus and supplies for safeguarding the lives of the newborn infants and the mothers.

**REGULATION 2 Newborn Nurseries**—(a) Every lying-in institution shall maintain in good order at least two separate regular nurseries, one for the care of normal newborn infants and another for the care of premature and immature infants. These nurseries shall be an integral part of the maternity service.

(b) Separate isolation quarters shall be maintained at all times for the isolation of ill or infected babies. A baby shall be deemed infected (1) if a carrier or suspected carrier of, or affected with, a communicable or suspected communicable disease or condition, or (2) if delivered of an ill or infected mother, or (3) if delivered outside the lying-in institution. Such ill or infected baby shall be immediately isolated. The isolation quarters shall be in a division of the maternity service separated from the main nurseries.

(c) All nurseries, isolation quarters and the halls adjacent thereto shall be adequately and properly lighted, ventilated and heated, protected from noise and odors and kept free from insects and vermin. These rooms and hallways shall at all times be maintained in good repair and in a clean and sanitary condition. Walls and ceilings of these rooms and hallways shall be so constructed as to be easily cleaned and washed.

(d) The spacing between adjoining bassinets in all nurseries and isolation quarters shall be maintained at a minimal distance of six inches on all sides. Where a carrier system is used the bassinets shall also be so arranged that the infant is at least six inches below the upper surface of the carrier. The suspension of bassinets on double tier racks shall be prohibited.

(e) Where common dressing, bathing or diapering tables are used, these shall be draped with sterile linens or suitable clean paper sheeting for each baby immediately before use.

(f) The weighing scale shall be draped with sterile linens or suitable clean paper sheeting for the weighing of each baby immediately before use.

(g) Individual sterilized rectal thermometers shall be provided for each baby.

(h) Common or group baby carriers for taking newborn babies for feeding to their mothers shall be prohibited, unless they are provided with bassinets arranged in accordance with paragraph d of this regulation.

(i) Each and every nursery shall be provided with running hot and cold water. The isolation quarters, if newly constructed or altered after Jan. 1, 1938, shall be provided with running hot and cold water.

(j) Each and every nursery and the isolation quarters of such nursery shall be provided with proper receptacles for the temporary disposal of soiled linen, diapers and waste. Such soiled articles shall be removed immediately or within a reasonable time from the nursery or isolation quarters.

(f) All bottles used for feeding babies shall be cleaned and sterilized in the nursery quarters before return to the formula room or suite.

(f) Anything coming in contact with or introduced within the baby's nose or mouth must be made sterile and handled only by a person who has scrubbed and disinfected his or her hands and put on sterile rubber gloves. All tongue depressors, applicators, ear specula and other examining instruments shall be standard nursery equipment and separate sets shall be maintained for each nursery and for each isolation quarter, and shall be sterilized before use for each baby. The bowls of stethoscopes shall be cleaned with a proper solution of alcohol, cresol or other disinfectant before use for each baby.

(m) All gauze, cotton, swabs or other materials intended for use in the care of the baby shall be sterilized and kept or stored in sterile containers.

(n) Equipment of the nursery shall be limited only to furnishings and supplies necessary for the immediate care of the infants.

(o) Dry dusting or sweeping shall be prohibited in all the nurseries and adjoining hallways.

**REGULATION 3 The Newborn Nursery Laundry**—All nursery linens, including diapers and articles of infants' clothing, shall be kept separate from linens of other parts of the hospital and when soiled shall be washed and sterilized separately from the linens of other parts of the hospital, in a separate laundry or in the same laundry at definite periods set aside for the laundering of these nursery linens only. Such sterilization shall consist of boiling the linens in water for fifteen minutes and of thorough rinsing in clean water, or of another approved method of sterilization.

**REGULATION 4 Formula Room or Suite**—(a) A formula room or suite shall be maintained in all lying-in institutions, specifically for the purpose, completely separated from any diet kitchen, pantry, scullery, or other place of food storage or preparation.

(b) The formula room or suite shall be provided with adequate refrigeration facilities for formulas and milk supplies, and with adequate sterilization facilities for the sterilization of bottles, nipples, bottle caps and other formula preparation utensils.

(c) Any nurse or dietitian preparing or assisting in the formula room or suite in the preparation of formulas for babies of the newborn nurseries shall, before beginning such duties, remove her outer garments, put on a sterile cap and mask, scrub hands and put on sterile gloves and a sterile gown. An aseptic technic such as is carried out in operative procedure shall be maintained at all times.

(d) All bottles, nipples, bottle caps and other formula preparation utensils shall be adequately sterilized in the formula room or suite before use in preparing or bottling formulas. Nipples may be sterilized in the nurseries immediately before use.

(e) Each baby shall have its individual set of properly labeled bottles sufficient for a day's feeding. The storing of formula feedings in bulk is prohibited.

**REGULATION 5 Accessory Rooms**—In lying-in institutions where ritual circumcision is done, a separate room shall be maintained for this purpose which room shall be completely divided by a glass partition of at least six feet in height. One side of this room shall be used for the circumcision procedure and the other side for witnesses. All persons concerned with the ritual circumcision shall follow the aseptic technic outlined in regulation 13a and all procedures connected therewith shall conform to this technic.

**REGULATION 6 Sanitary Equipment**—All nurseries, isolation quarters, formula rooms, examining rooms, labor and delivery rooms and maternity rooms or wards shall each have adequate facilities for the scrubbing of hands, suitable disinfectant solu-

tion, and receptacles for the efficient temporary disposal of soiled linens and waste. All plumbing, plumbing fixtures, sterilizers and other similar equipment shall be so constructed, installed and maintained as to prevent cross connections or other sanitary hazards.

**REGULATION 7 The Nursing Staff**—(a) A separate nursing staff under the supervision of a registered graduate nurse shall be maintained, both day and night, in the nurseries and isolation quarters concerned with the care of the newborn. Not more than one unit of eight babies shall be under the care of any one individual nurse at any time during the day or night.

(b) Nurses assigned to formula room duty shall be prohibited from doing any type of duty at any time which may bring them in contact with a septic or infected patient in any part of the hospital.

(c) Nurses assigned to the nurseries shall wash their hands thoroughly with soap and hot water immediately after changing or diapering each baby. If at any time during the feeding of any baby it becomes necessary to handle or change the nipple of a feeding bottle, the nurse shall scrub her hands thoroughly with soap and hot water and put on sterile rubber gloves, unless the handling or changing of the nipple is carried out by means of sterile forceps in such a way that the hands of the nurse will not come in contact with the nipple.

(d) All nurses assigned to the isolation quarters shall be prohibited from entering the regular or the premature nurseries.

(e) Private nurses may be admitted to the nurseries of private pavilions, provided they comply with all the prescribed regulations as outlined in regulation 13a.

(f) No person shall enter the nurseries or the isolation quarters except those immediately concerned with the care of the newborn.

**REGULATION 8 The Medical Staff**—The medical board or other governing body of such hospital or institution shall designate whether the newborn nurseries are under the supervision of the obstetric or pediatric service. Such designation shall be in writing and kept on file in the office of the superintendent and be available for inspection at any time by a representative of the Department of Health.

**REGULATION 9 Maternity and Newborn Service Case History Records**—Complete and detailed case history records shall be kept of the progress of all maternity patients and their babies and be available for inspection at any time by a representative of the Department of Health.

**REGULATION 10 Examination of Maternity and Newborn Service Personnel**—(a) All personnel on duty on the maternity or newborn services, when these regulations go into effect, shall be examined by a physician designated by the hospital management and be certified by him as showing no evidence of communicable disease or a respiratory, urinary or fecal carrier state.

(b) All new personnel shall be similarly examined prior to assignment to the maternity or newborn service.

(c) All personnel on duty on the maternity or newborn services shall report immediately to a physician designated by the hospital management any indisposition however slight such individuals and all individuals absent from duty because of any illness whatever shall be excluded from the maternity and newborn services until examined by the physician designated for the purpose and certified by him in writing to the superintendent as not suffering from any condition that may endanger the health of the mothers or babies. All such certifications shall be kept on file in the office of the superintendent and shall at all times be open to inspection by a representative of the Department of Health.

**REGULATION 11 Examination of Maternity Patients**—All maternity patients shall have a complete history taken, a thorough physical examination, and inquiry made on admission as to any infection. Any history or examination that reveals a communicable or suspected communicable condition or disease or a respiratory, urinary or fecal carrier state shall be sufficient cause to have such patients isolated.

**REGULATION 12 The Care of the Newborn Baby**—The newborn infant shall be examined for hemorrhage, injuries, defects or signs of infection immediately on delivery and be further observed daily. If any infection is found or suspected the baby

shall be isolated immediately. All babies shall be reexamined at the time of discharge.

**REGULATION 13 The Aseptic Nursery, Maternity and Delivery Room and Feeding Technic**—(a) **Nursery Technic**—All doctors, nurses and other hospital personnel in attendance on babies in any of the newborn nurseries or isolation quarters shall remove coats or other outer clothing, bare their arms to the elbows, wash their hands and arms thoroughly with soap and hot water and put on clean caps, gowns and masks. In addition they shall wash their hands with soap and hot water and immerse them in a suitable disinfectant solution before the handling of each baby. Babies shall be handled as little as possible, and in strict accordance with an aseptic procedure as close to that of an aseptic operative procedure as is possible.

(b) **Maternity Ward Technic**—All doctors, nurses and other hospital personnel before attendance on maternity patients in other than individual private rooms shall remove coats or other outer clothing and put on clean caps, gowns and masks. No visitors shall be permitted beyond the foot of the bed of the patient, nor shall outer clothing be permitted to be placed on the beds of patients.

(c) **Delivery Room Technic**—This shall be in accordance with recognized and approved surgical operative technic.

(d) **Feeding Technic**—At feeding times the mother shall be provided with a clean mask prior to receiving her baby for feeding. The mother's breasts shall be thoroughly cleansed before each nursing.

**REGULATION 14 Visitors and Visiting Hours**—(a) Visiting hours to maternity services shall be set at such a time as not to coincide with the hours when the newborn infants are in the maternity ward or rooms for nursing by their mothers. There shall be a minimum of visiting permitted on all maternity services.

(b) Visitors or individuals not connected with the direct care of the babies shall be prohibited from entering the newborn nurseries at any time.

(c) Children under 14 years of age shall be prohibited from admittance to any maternity ward at any time.

**REGULATION 15 Copy of Regulations to be Kept Readily Available**—A copy of these regulations shall be kept on the maternity service of all lying-in institutions for the information and guidance of all personnel connected with such service.

It is probable that, with further experience, these regulations may be amended by adding others or deleting some that may be found unnecessary. However, we believe that these regulations are basically sound and indicate the fundamental principles on which a well regulated maternity service should be conducted to the end that not only epidemic diarrhea of the newborn will be controlled but that neonatal morbidity and mortality from other causes may also be reduced.

**The Vegetative Nervous System**—This portion of the nervous system has been termed by various workers sympathetic, autonomic, vegetative or involuntary. Since it is not completely involuntary or autonomic and cannot be separated from somatic functions, we shall use the terms sympathetic or vegetative nervous system. We shall apply to the thoracolumbar portion of the vegetative nerves the name orthosympathetic, while terming the bulbosacral outflow parasympathetic. The nerves belonging to the vegetative nervous system innervate unstriated (smooth) musculature in general, which includes the blood vessel walls, heart, lungs, bladder, glandular structures and the viscera. Generally speaking the nerves innervate structures which are concerned with internal activities of the body, those necessary to the continuance of life and those which must be adjusted for, or as a result of external changes. This nervous organization is concerned with the internal matrix (vital functions) within which the processes of life are based. The fine coordination of the various component parts of the vital machine, their modification to meet sudden stresses and their adaptation to environmental factors are in general vegetative functions.—Grinker, Roy, R. Neurology, ed. 2, Springfield, Ill. Charles C. Thomas, 1937.

## LAENNEC'S CIRRHOSIS

REPORT OF 217 CASES

NEWTON EVANS, M.D.

LOS ANGELES

AND

P. A. GRAY, M.D.

SANTA BARBARA, CALIF.

The clinical impression has long been current that the excessive consumption of alcoholic beverages is conducive to the development of Laennec's type of cirrhosis of the liver. This impression has persisted in spite of the general failure to reproduce this lesion experimentally by feeding alcohol to laboratory animals. Mallory<sup>1</sup> has suggested that minute amounts of phosphorus alloyed with iron which may be present as contaminating traces in liquors may be the real etiologic factor. Von Gerlach<sup>2</sup> found that the copper content of the liver of patients with cirrhosis was elevated and suggested that this mineral in conjunction with alcohol may be significant. Moon<sup>3</sup> recently reviewed the literature dealing with the experimental attempts to produce cirrhosis artificially and decided that no single factor can be responsible, that several factors must operate simultaneously and that, of these, nicotine, manganese and phenylhydrazine are probably significant. Boles and Clark<sup>4</sup> have also rejected the alcoholic theory, on the basis of their autopsy statistics.

The autopsy records of typical cases of Laennec's cirrhosis (portal, nodular or atrophic) from the Los Angeles County Hospital have been examined in an effort to gain further insight into the etiology of this

(chart 1). The beginning of this rise coincided with the repeal of the national prohibition law. The incidence for the period since repeal is three times that observed before (table 1).

As has been observed in other series, the sex incidence of these 217 cases shows a preponderance of males over females (25:1, table 2). The ratio of males to females is slightly higher (26:1) in the period from 1933 to 1937 than in the earlier one (19:1). Most of the cirrhosis has occurred from the fourth to the eighth decade, inclusive (chart 2). Although the peak of incidence for the group as a

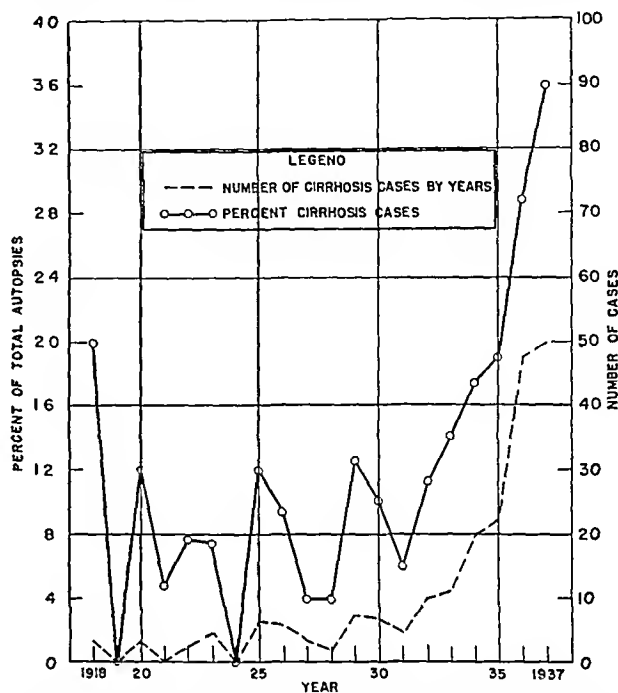


Chart 1—The rising incidence of cirrhosis. The data for 1937 were estimated for twelve months on the basis of those collected in the first four months.

TABLE 1—Incidence of Cirrhosis

Years	Number of Autopsies	Number of Cases of Cirrhosis	Percentage of Cirrhosis
1918-1937 (inclusive)	9 527	62	0.65
1933-1937 (May 1)	8 347	155	1.84
Total	17 874	217	1.21

TABLE 2—Sex Incidence

	Males	Females	Total
1918-1932	41	21	62
1933-1937	114	41	155
	1.5 (71.4%)	62 (28.6%)	217

interesting lesion. Records on 17,874 autopsies performed from Jan. 1, 1918, to May 1, 1937, are available. In these, 217 cases of Laennec's cirrhosis were observed. This represents a gross incidence of 1.2 per cent, which is lower than the figures available to us (Mallory<sup>1</sup> 3 per cent, Boles<sup>2</sup> 6 per cent and Ophuls<sup>5</sup> 2.2 per cent). When arranged chronologically, these cases of cirrhosis show a definitely rising incidence

whole falls in the sixth decade, that of the females occurs a decade earlier than that of the males.

Since we have been concerned chiefly with the so-called alcoholic type of cirrhosis, cases of hypertrophic, biliary and syphilitic cirrhosis have been excluded from this study. The criteria used in classification have been as follows:

The liver usually appears shrunken, deformed and covered with yellowish brown or orange colored projections. The tissue between the projections is gray and firm. The liver cuts with increased resistance, the cut surface shows distortion of the normal lobular pattern, projections of varying size and scarring.

The principal factor contributing to death in this series was lobular pneumonia or bronchopneumonia, of which 33.6 per cent of the patients died (table 3). It was difficult to determine in many instances whether bronchopneumonia was the actual or only a contributing cause of death. For the purposes of this report a patient dying with bronchopneumonia was assumed to have died of it. Frequently this lesion was hemorrhagic and of the aspiration type.

Next in order of frequency as an immediate cause of death was hemorrhage from the gastro-intestinal tract (20 per cent). Thirty patients (13.9 per cent) had ruptured esophageal varices with fatal hemorrhage.

From the Los Angeles County Hospital Department of Pathology and the Departments of Pathology and Internal Medicine of the College of Medical Evangelists.

1. Mallory F. B. Cirrhosis of the Liver in Cyclopedia of Medicine Philadelphia F. A. Davis Company 1935.

2. Gerlach W. Alkohol Kupfer Leberzirrhose Schweiz med Wchschr 65 194 197 (March 2) 1935.

3. Moon V. H. A Review of All Experimental Attempts to Produce Cirrhosis Artificially Klin Wchschr 13 1489 1493 (Oct 20) 1934.

4. Boles R. S. and Clark J. H. The Role of Alcohol in Cirrhosis of the Liver J. A. M. A. 107 1200 1203 (Oct. 10) 1936.

5. Ophuls William A. Statistical Survey of Three Thousand Autopsies Stanford University Calif. Stanford University Press 1926.

One half (fifteen) of these did not have ascites. In this group without ascites a correct clinical diagnosis was made ante mortem only twice. In the fifteen cases of esophageal hemorrhage with ascites a correct diagnosis was made thirteen times.

The presence of ascites was the principal factor in the whole group of cases conducive to a correct ante-

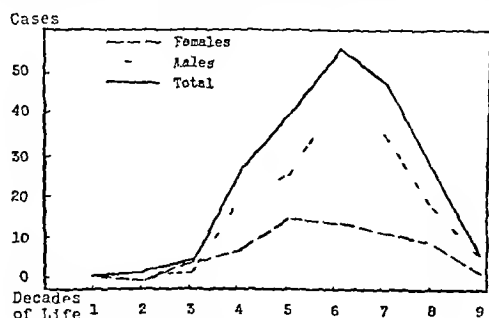


Chart 2—Incidence of cirrhosis according to age and sex

mortem diagnosis. In all, there were 131 cases of ascites, and a correct diagnosis was made in 56.5 per cent. On the other hand, in the eighty-six cases without ascites a correct diagnosis was made in only 15.1 per cent. In the total 217 cases of cirrhosis a correct ante-mortem diagnosis was made in only 41.5 per cent.

The third or next most prominent group consisted of cases of cirrhosis without concomitant complications. Death in these cases was presumably due to changes within the liver itself, or "liver insufficiency." Twenty-five (11.5 per cent) such instances were noted. The livers were as a rule of less than average size. Their average weight equaled 1,364 Gm., only six (2.4 per cent) were above 1,500 Gm. Twenty-two (8.8 per cent) of the patients showed ascites, and eleven (4.4 per cent) were jaundiced.

A change in the gross pathologic characteristics of the livers of the patients with cirrhosis occurred in the past few years. In the period from 1918 to 1932 the livers ranged in weight from 480 to 2,700 Gm. (One 2 year old child had a liver weighing 110 Gm.) Of the fifty-eight livers in this group whose weight was recorded, seventeen (29.3 per cent) weighed 1,500

TABLE 3—Cause of Death in Cases of Cirrhosis

	Cases
Pneumonia	73
Lobular	8
Lobar	43
Gastro-intestinal hemorrhage	26
Liver insufficiency	10
Peritonitis	9
Cardiac failure	6
Malignant process	6
Tuberculosis	5
Cerebral softening	3
Portal thrombosis	2
Mastoiditis	24
Miscellaneous	217

Gm. or more. In the later period, 1933 to 1937, the average weight of the liver tended to be greater. The livers ranged from 675 to 3,800 Gm. Of the 153 livers in this group, eighty-three (54.2 per cent) weighed 1,500 Gm. or more (table 4). The increased size and weight of the livers in the second group was in most instances due to the presence of fatty change.

This increased incidence of fatty change in cirrhotic livers somewhat parallels that of fatty livers seen in this laboratory in patients with chronic alcoholism

who died without clinical evidence of Laënnec's cirrhosis. Chart 3 shows the percentage of such livers to the total autopsies for the past four and a half years. These cases represent persons whose condition was diagnosed clinically as chronic addiction to the excessive use of alcohol and in whom no other lesion was found at autopsy to explain the fatty degeneration of the liver.

Sixty-four (29.5 per cent) of the 217 patients with cirrhosis were jaundiced. Of these, seven (10.9 per

TABLE 4—Comparative Weights of Livers

Weight of Liver	Cases in 1918-1932	Cases in 1933-1937
1,500 Gm. or more	17 (29.3%)	83 (54.2%)
Less than 1,500 Gm.	41	40
	58	123

TABLE 5—Alcoholic History

No mention of alcohol	115
Use of alcohol denied	4
Use of alcohol questionable	5
Use of alcohol admitted	4
Clinical records inadequate or not available	11
	139

cent) showed acute hepatic necrosis complicating the atrophic cirrhosis. Contrasted to this, only five (3.2 per cent) of the 153 patients without jaundice showed acute necrosis. Three of the sixty-four patients with jaundice showed malignant changes in the liver parenchyma, in forty-four cases no obvious cause for jaundice was observed.

Since the excessive consumption of alcoholic beverages has been considered to be an important etiologic factor in atrophic cirrhosis, the records of these 217 cases were examined as to this point. In forty-six cases (22.2 per cent) there was a clear-cut history of chronic alcoholism (table 5). This group embraced cases of Korsakoff's syndrome, delirium tremens, peripheral neuritis and repeated admissions for acute intoxication. In a considerable number of cases the moribund condition of the patient on admission precluded the possibility of eliciting an adequate history. In these forty-six cases the history showed marked evidence of chronic alcoholism. In five additional cases the history of the abuse of alcohol was questionable. In all, in forty-six cases (26.5 per cent) of 173 in which an adequate history was available an abuse of alcohol was reported. Were records available on the drinking habits of a greater number of the patients in this series a higher incidence of excessive alcoholic consumption might be expected.

Syphilis was the next most frequent associated condition, being present in twenty-six (12 per cent) cases. Tuberculosis was noted in six (2.8 per cent)

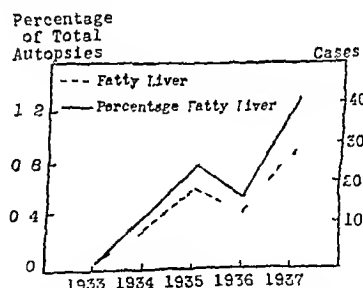


Chart 3—Number of fatty livers observed in relation to the number of autopsies. Data for 1937 estimated on the basis of those collected in the first four months.

## COMMENT

Laënnec's (atrophic) cirrhosis is apparently showing a rising incidence. The beginning of this rise coincided with the repeal of the national prohibition law. Since repeal the incidence in our series has been three times that seen during the prohibition period. One fourth of the patients definitely had chronic alcoholism. This factor exceeded all other single known factors in frequency. These facts seem to indicate that the excessive consumption of alcoholic beverages is in some way conducive to cirrhosis of the liver. It probably acts only as a contributing factor. Further study of cirrhotic livers for their mineral content might be profitable.

In his group of sixty-eight cases of true Laënnec's cirrhosis, Ophuls<sup>6</sup> found a history of alcoholism for thirty-one of thirty-four patients about whom clinical data were available. Assuming, as we have done in this study, that the absence of clinical data was equivalent to a negative history, this incidence equals 45.6 per cent. Even Boles and Clark,<sup>4</sup> who reject the alcoholic hypothesis, report an incidence of 35 per cent. These observations, in the light of our data, seem too significant to be passed over lightly. The generally increasing addiction to nicotine and the increasing therapeutic use of heavy metals may act with alcohol as aggravating factors.

No insight was gained from this study into the nature of death from "liver insufficiency." Clinical procedures available at present are not adequate for the correct diagnosis of cirrhosis even in 50 per cent of cases, hence the material available is too limited for adequate statistical analysis. Furthermore, the various liver function tests known at present are notoriously inadequate as a true measure of the functional activity of this organ.

The prevalence of fatty changes in livers observed during the second period covered by this report (1933-1937) is worthy of note. The fact that the liver is practically always large and fatty in patients dying with clinically recognizable chronic alcoholism but not presenting classic cirrhosis, and the almost complete absence of this type of change in the liver under other conditions lead to the conclusion that there is an essential relationship between chronic alcoholism and fatty liver.

In considering the cases in which the liver shows a combination of typical cirrhosis and fatty metamorphosis two hypotheses present themselves. 1. These combined lesions represent a comparatively early stage of cirrhosis in which the fatty change is being obscured and submerged by the fibrotic replacement hyperplasia. 2. The fatty change is the true lesion of alcoholism, which has been superimposed on an already existent cirrhosis of, at present at least unknown cause. The correct solution to the problem will have to await direct experimental evidence.

## SUMMARY

1. The incidence of Laënnec's type of cirrhosis of the liver is apparently increasing. For the years 1918 to 1932 inclusive this lesion was observed sixty-two times, or in 0.65 per cent of all autopsies. From 1933 to May 15, 1937, it was observed 155 times, or in 1.84 per cent of all autopsies.

2. The excessive consumption of alcoholic beverages seems to be a contributing factor to the development of cirrhosis. In forty-six cases of 173 (26.5 per cent) there was a clear-cut history of alcoholism.

MEDICAL ASPECTS OF SURGICAL  
TREATMENT OF HYPERTENSION

IRVINE H. PAGE, M.D.

INDIANAPOLIS

The effort to treat hypertension by surgical as well as medical means is a development of recent years. While the theoretical basis of certain operations used is insecure, some of the results obtained are worthy of serious study. Two operations among the many proposed appear most likely to be of some value. These are resection of the anterior spinal nerve roots<sup>1</sup> and resection of the splanchnic nerves.<sup>2</sup>

Three and one-half years ago Dr. George Heuer of the New York Hospital and I decided to study intensively the effects of these two operations on patients with hypertension. A plan was put into effect whereby the patients were studied for a long period in the Rockefeller Hospital and transferred to the New York Hospital for operation by Dr. Heuer. They were then returned for further study. In this manner we believed that the study would be as objective as possible.

In all twenty patients have been subjected to section of the anterior spinal nerve roots and nine patients to resection of the splanchnic nerve and the lower thoracic ganglions (Peet technic). It is not my purpose in this brief communication to discuss the literature or review the cases in detail. This has recently been done by Dr. Heuer and me.<sup>3</sup> It is my purpose to present a summary of my medical observations and experiences and of the opinions which I have formed during the care of these patients. Dr. Heuer has reviewed the subject from the surgical point of view.<sup>4</sup> It appeared to be a matter of the first importance to observe our patients for as long as practical before operation to exclude normal fluctuations in the level of arterial pressure and to become thoroughly acquainted with their physical status and emotional pattern. Most patients were not accepted for study unless the date of onset of the disease could be determined with reasonable accuracy from records of physicians and insurance examinations, for we wished to ascertain the probable rate of progress of the disease. The patients were usually studied in the outpatient department for several weeks or months and then admitted to the hospital for a month or more to rest in bed. They were not, except under special circumstances, allowed out of bed. When it seemed desirable, sedatives, such as bromides, chloral preparations and amylal were administered.

Whether it would be wise to select only certain patients for operation was considered, but as no criteria for such selection were known, patients with various

From the Hospital of the Rockefeller Institute for Medical Research.  
Lecture given at Georgetown University School of Medicine, Sept. 13, 1937.

1. Adson A. W. and Brown G. E. Malignant Hypertension. *J. A. M. A.* 102: 1115 (April 7) 1934. Adson A. W., Craig W. M. and Brown G. E. *Surg. Gynec. & Obst.* 62: 314 (Feb. 15) 1936.

2. Craig W. M., Nickl and Brown G. E. Unilateral and Bilateral Resection of the Major and Minor Splanchnic Nerves. *Arch. Int. Med.* 54: 577 (Oct.) 1934. Fraclick F. B. and Peet M. M. Hypertension. *Fundus Oculi After Resection of Splanchnic Sympathetic Nerves.* *Arch. Ophth.* 15: 840 (May) 1936. Freyberg R. H. and Peet M. M. *J. Clin. Investigation* 16: 49 (Jan.) 1937. Smithwick R. H. The Value of Sympathectomy in the Treatment of Vascular Disease. *New England J. Med.* 216: 141 (Jan. 28) 1937. Page I. H. and Heuer G. J. The Effect of Splanchnic Nerve Resection on Patients Suffering from Hypertension. *Am. J. M. Sc.* 192: 820 (June) 1937.

3. (a) Page I. H. and Heuer G. J. Treatment of Essential and Malignant Hypertension by Section of Anterior Nerve Roots. *Arch. Int. Med.* 59: 245 (Feb.) 1937. (b) Page and Heuer.

4. Heuer G. J. *Bull. New York Acad. Med.* 13: 692 (Dec.) 1937.



types of hypertension were chosen. This choice has, I believe, been advantageous, because some of the patients responded well who might least have been expected to do so. In short, the criteria usually

barbituric acid is administered as an anesthetic to ascertain the fall in pressure as an index of vascular flexibility.

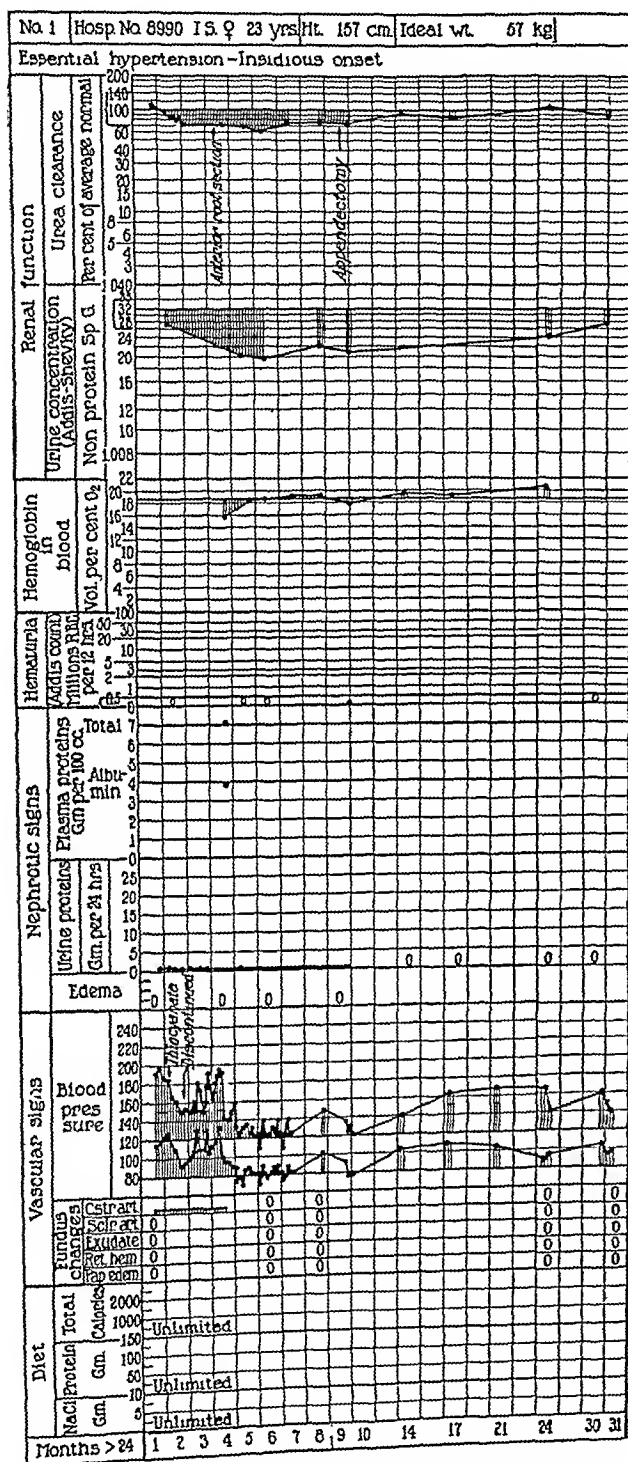
In order to avoid confusion, the classification of the types of hypertension will be briefly reviewed. Essential hypertension is considered a disease with a strong hereditary background. The onset is usually insidious and without ascertainable cause but often follows several years after toxemia of pregnancy or eclampsia. It may occur during the menopause. Vascular and renal changes may be slight or advanced. Morbid cardiac changes may or may not be present. Except for constriction and sclerosis of the retinal arterioles and arteriovenous compression, the ocular fundi are normal. Later in the disease exudates may appear. Secondary glaucoma is not rare. Some patients show more or less well developed neuroses. Some exhibit signs and symptoms such as primitive emotional behavior, blushing, lacrimation, sweating and palpitation, which in many ways appear to imitate morbid stimulation of the diencephalic centers (the "hypertensive diencephalic syndrome").<sup>6</sup> Death is usually due to cardiac failure, apoplexy or uremia. Great variability is exhibited in the rapidity with which the disease progresses. At any time progress may be accelerated and signs appear suggesting that it has become malignant.

Malignant hypertension, conversely, is considered a syndrome which runs its course in a short time, rarely more than four years. It is often heralded by the appearance of hemorrhage in the retinas and blindness. Papilledema occurs early. Symptoms and signs are often surprisingly slight until a few weeks, or even days, before death. The arterial pressure rises rapidly, but the diastolic pressure is usually proportionately higher than the systolic, producing a low pulse pressure. Renal efficiency may fall rapidly to a uremic level but in some cases is not much affected. Hemorrhages and exudate may all but obliterate the arterioles in the retinas. Edema of the retina and often detachment occur. These patients should be distinguished from a type occasionally seen during and for a year or more after pregnancy who have hemorrhages in the fundi. The hemorrhages are usually reabsorbed, and while the pressure may remain elevated, the course of the disease is ordinarily markedly different from that of malignant hypertension.

#### EFFECTS OF SECTION OF THE ANTERIOR SPINAL NERVE ROOTS

The operation was usually performed in two stages by Dr. Heuer. The first stage consisted of a laminectomy, and from three to five days later the dura was opened and the nerve roots cut. The blood pressure usually fell to normal levels during both operations but rose moderately during the next few days. The patients suffered considerable pain in the back for several days after operation but in most cases convalescence was uneventful. Some days were required before normal bowel function was reestablished, and some of the patients had difficulty in urination. During convalescence fluctuations of blood pressure were marked, but after several weeks it became more steady.

First, consideration will be given to the effects of the operation on the arterial blood pressure. I have gathered these results into tabular form, arbitrarily taking the average pressure over a period of several days every



Example of method employed for the study of patients. Months represents the estimated time elapsed since the onset of the disease. The vertical lines separating periods of a month. Under Fundus Changes Pap edem indicates papilledema Ret hem retinal hemorrhages Scler art arterial sclerosis and Cstr art arteriolar constriction. Under Blood Pressure, the dots represent measurements taken daily for from three to five days averaged for convenience in charting.

employed for the measurement of vascular flexibility have not proved completely reliable. We have had no experience with the method of Allen,<sup>7</sup> in which thio-

six months after operation. Much more complete data will be found in the charts recently published by Page and Heuer.<sup>3a</sup>

Three of six patients with essential hypertension who exhibited signs and symptoms of the "hypertensive diencephalic syndrome" showed sustained reduction in blood pressure after operation, while the pressure of three others rose to the preoperative level during the course of twenty-four months. Of three patients without marked demonstrable vascular changes, but with

appears to be very slowly falling after one year. This is not due to cardiac failure.

The symptomatic improvements are out of proportion to the fall in blood pressure. Particularly striking was the disappearance of headaches, lessening of the ease with which the patients became fatigued and loss of the nervousness, tenseness and irritability often so characteristic of the disease.

No change in renal efficiency, as measured by urea clearance or ability to concentrate urine, was observed.

TABLE 1—Effect of Section of the Anterior Nerve Roots on Arterial Pressure and Renal Function

Case No.	Age	Sex	Estimated Duration	Roots Sectioned	Preoperative		6 Mo after Operation		12 Mo after Operation		18 Mo after Operation		24 Mo after Operation		30 Mo after Operation		Comment
					Blood Pressure	Urea Clearance	Blood Pressure	Urea Clearance	Blood Pressure	Urea Clearance	Blood Pressure	Urea Clearance	Blood Pressure	Urea Clearance	Blood Pressure	Urea Clearance	
					A Essential Hypertension with the Hypertensive Diencephalic Syndrome												
1	23	♀	18 mo	6D 2L	190/122	104	138/92	84	140/104	50	168/104	106	150/94	90	150/100	96	
2	24	♀	2 yr	9D 1L	206/149	80	170/102	94	164/100	100	150/96	82	140/98	84			
3	17	♀	18 mo	9D 1L	180/122	106	130/84	86	142/98	90	140/90	98	138/86	110	124/86	98	
4	32	♀	8 yr	9D 1L	210/130	101	150/100	120	148/100	104	188/120	112	212/124	96			
5	25	♀	3 yr	6D 2L	184/116	91	140/104	160	160/110	124	190/110	130	192/118	120	180/98	140	
8	25	♀	2 yr	8D 1L	210/130	74	170/106	68	172/110	65	220/124	86	216/126	124			
B Cases of Essential Hypertension with Moderate and Advanced Vascular Change																	
12	33	♀	10 yr	8D 1L	258/140	90	200/118	00	196/134	110	222/126	88	230/136	99	224/126	91	
19	22	♀	2 yr	8D 1L	260/160	31	250/156	22	204/124	15							Died of apoplexy 12 mo after operation
20	40	♂	3 yr	7D 1L	240/150	92	210/134	76	230/138								Died of apoplexy 10 mo after operation
6	40	♀	2 yr	9D 12D	230/142	72	210/122	55	246/148								
7	35	♀	3 yr	7D 12D	190/122	88	190/110	88					200/118	103			
13	46	♂	15 yr	9D 1L	270/160	68	220/144	56	250/156	15	260/163	3					Died of uremia 17 mo after operation
C Malignant Hypertension																	
9	26	♀	1 yr	6D 12D	200/110	18											Died during closure of the dura
10	24	♂	7 mo	9D 1L	190/120	92	162/104	116	150/100	114	160/106	100	165/106	98	152/106		
11	26	♂	3 mo	9D 1L	190/124	30	196/142	9	184/140	7							Died
14	37	♂	2 yr	7D 12D	270/170	55											Died 1 mo after operation of apoplexy blood pressure 220/150 urea clearance 56
15	44	♂	3 yr	8D 1L	200/132	88	190/120	86	180/112	98	100/116	72					
21	21	♀	3 yr		250/150	104	258/148	102	204/118	110	270/165	88					
22	46	♀	12 yr		252/166	46											Apoplexy died 2 mo after operation blood pressure 200/140 urea clearance 28
23	22	♀			260/144	100	250/152	102	220/125	109							
D Incomplete Operations																	
16	21	♂	Transverse lesion of spinal cord		200/132	119	138/90	50	140/96	116	146/110	91					
18	39	♀	6 yr		270/148	86											Died as result of streptococcal infection 5 days after laminectomy
17	37	♂	7 yr		230/140	42											Laminectomy but no root section blood pressure 270/172 3 mo after operation

\* These numbers refer to the detailed case reports in a paper by Page and Heuer.<sup>3a</sup>

immoderately high arterial pressure, two exhibited considerable reduction and one did not. Four of five patients with marked vascular changes showed only a temporary fall, and one exhibited a marked fall about ten months after operation. Eight patients with malignant hypertension were subjected to operation. In four the pressure was not influenced significantly, while in four others definitely lower levels were established.

While in most of the patients with essential hypertension a definite trend of the blood pressure upward was observed two years or more after operation, in others the lower levels have persisted. In no case has the blood pressure fallen to and remained at normal levels, allowing one to speak of a cure. In one of the patients with malignant hypertension the pressure

which could be referred directly to the operation. When renal function was decreasing as a result of the disease, it continued to do so. It is my opinion that if change in renal function occurs it is associated more closely with the general clinical condition of the patient than with any direct effect the operation may have on the kidneys themselves.

The effect of the operation on the eyegrounds was in some cases remarkable. Relaxation of the constricted arterioles occurred in twelve cases. In one case of malignant hypertension complete reabsorption of hard white exudate occurred and hemorrhages and papilledema disappeared. The morbid changes in the patient's eyegrounds were marked. Clearing of such extensive changes I have never seen before, though it may occur in rare cases. In a second patient with malignant hyper-

tension there was also marked change for the better, but such extensive destruction had already occurred that it was hardly possible for complete repair to take place. Of interest is the fact that in one patient suffering from severe secondary hypertensive glaucoma the intra-ocular pressure became normal after operation and has remained so for twelve months.

Careful and repeated roentgen studies showed that slight reduction in the size of the cardiac shadow occurred in eight cases. For the most part no change was observed in the electrocardiogram. In two patients the T waves, which had been inverted in lead I, became upright after operation.

Disability as a direct or indirect result of the operation has not been observed. None of the patients required abdominal binders to support the paralyzed portion of the abdominal wall, though many of the women wore corsets, as had been their custom. For several months after operation some of the patients complained of stiff or painful back muscles, but the complaints of all have disappeared. Although the

TABLE 2—Effect of Resection of the Splanchnic Nerves on Arterial Blood Pressure and Renal Function

Case No.	Age	Sex	Preoperative		3 Mo after Operation		6 Mo after Operation		15 Mo after Operation	
			Blood Pressure	Urea Clearance	Blood Pressure	Urea Clearance	Blood Pressure	Urea Clearance	Blood Pressure	Urea Clearance
1*	46	♀	190/110	95	182/110	90	200/112	106	200/103	100
2	48	♀	230/120	120	202/106	120	220/120	103	210/118	96
3	37	♀	200/120	70	202/120	78	193/118	85	194/116	93
4	36	♂	210/130	102	230/142	83	240/146	90	218/130	64
5	25	♀	180/120	62	180/118	90	183/122	94	180/120	93
6	34	♀	216/126	94	180/110	90	183/110	94	193/124	95
7*	24	♂	226/134	118	220/140	76				
8†	20	♂	210/140	16	170/112	17	216/130	15		
9†	18	♀	242/160	64	230/140	0				

\* Cases 1 to 7 essential hypertension and 7 to 9 malignant hypertension.

† Died 9 months after operation.

‡ Died in fourth month after operation.

operation is extensive, it cannot be called disabling, as performed by Dr. Heuer. I have observed no clinical signs or symptoms in any of the patients even after three years which suggest inadequate tissue oxygenation as a result of the lowered blood pressure.

Section of the anterior spinal nerve roots is a difficult operation for the surgeon and has definite dangers. One patient died shortly after closure of the dura. She had seriously reduced renal function and was totally blind. The operation was performed in one stage. In the light of our experience we should not now attempt the operation on a patient with such advanced malignant hypertension, and if it was performed it would be done in two stages. One patient died three days after laminectomy from streptococcal meningitis. Dr. Heuer feels that this was due to a break in surgical technique. One patient with malignant hypertension had transverse myelitis at the eleventh thoracic segment, with paralysis of the legs, although only the laminectomy was performed. The blood pressure fell to a level which is practically normal and has remained at a level of from 130 to 170 mm of mercury for a year and a half. There has been moderate return of sensation in the legs and slight return of motor power. Renal function was unchanged. This accident was serious and warns that the operation has inherent dangers.

## SUMMARY

It may be said that the best clinical results have been obtained in two groups of patients. Relatively young persons with essential hypertension, who exhibited signs and symptoms of the "hypertensive diencephalic syndrome," and patients with malignant hypertension. Older patients suffering from hypertension of long standing do not appear to have been benefited by this operation. The question arises whether as good results could have been obtained by medical measures, such as treatment with sodium thiocyanate and rest in bed. I have employed such treatment in many cases, often with good results. I venture to suggest that the symptomatic relief is not as great as with operation, though this has not been proved. Improvement in the condition of the morbid ocular fundi is especially noticeable after operation and is, I believe, unusual after medical treatment. The effects of operation on malignant hypertension appear to be without parallel in medical treatment.

In my opinion the majority of patients with essential hypertension can still be treated best by medical means. However, operation may be desirable in the early stages of malignant hypertension and for young patients exhibiting the "hypertensive diencephalic syndrome."

Opposed to the good results that have been achieved are the accidents which occurred in three cases. Two of these could probably have been avoided and are not likely to happen again, while the third, the occurrence of transverse myelitis, still remains a serious hazard. Consequently, if an operation that is less difficult and dangerous is devised which offers equal results in selected cases, it will doubtless find a place in the therapeutics of hypertension. Perhaps Adson and Allen's new operation is a step in this direction.

## SPLANCHNIC NERVE RESECTION

The operation of supradiaphragmatic splanchnic nerve resection combined with removal of the lower thoracic sympathetic ganglions has been practiced extensively in this country. Dr. Heuer has performed it on nine patients whom I have studied. An effort was made to select a small but representative group, including young persons in whom the disease was benign, patients in whom the menopause had just passed, and patients in whom the disease was malignant.

The operation is a much less drastic one than section of the anterior spinal nerve roots, and there has been no operative mortality or serious complications. In some of the patients the operation was performed on one side and a week or more later on the other, while in others it was carried out in one stage.

During the operation and for days or weeks afterward the arterial pressure was markedly reduced without significant change in renal efficiency. But within nine months the pressure had returned in all cases to, or close to, the preoperative level (table 2).

Subjective improvement was marked in most of the patients with essential hypertension. This consisted of lessening in the frequency and the severity of head aches, and lessening of fatigue, nervousness, tenseness and irritability. But in three improvement lasted less than a year. Improvement in three patients with malignant hypertension was also transient.

Renal efficiency appeared to be unaffected by operation although only one patient exhibited low urea clear-

ance. It also appeared to have no significant effect on the heart as judged by electrocardiographic records or roentgenograms. Nor was any constant change observed in the pressor response to immersion of the hand in cold water (Hines-Brown test).

In one case of essential hypertension and two cases of malignant hypertension, papilledema disappeared after operation but it reappeared in the latter cases within several months. Reduction in the intensity of the constriction of the retinal arterioles occurred in all of the cases of malignant hypertension except one, demonstrating that arteriolar relaxation occurs in regions other than those denervated. In most of the patients constriction returned after several months.

It thus appears that while resection of the splanchnic nerves produces many of the effects that are observed after section of the anterior roots, they are often more transient. If a larger group had been operated on doubtless the results would have been more striking in a small percentage. From the point of view of technical ease and lack of dangerous complications, it is to be preferred to section of nerve roots but, conversely, the good results appear to be somewhat more transient in most cases. In no case was I able to detect that the patient had been harmed by the procedure.

It is my belief that surgical methods which are designed to aid in the treatment of hypertension are still in the experimental stage. The results are not as good as had been hoped for by some and not as bad as had been predicted by others. The operations which are now employed are probably far from the best, but it is becoming clearer what may be expected from the two operations which have here been discussed.

It is by no means certain what the theoretical basis is, in cases of hypertension, for performing operations in which large vascular areas are denervated. Normal as well as abnormal vasomotor impulses are naturally prevented from reaching normal or abnormal vessels to cause hypertonus. I know of no conclusive evidence that the nervous impulses are abnormal or that the vessels are unusually sensitive. It is of much interest that after operation vascular constriction in the eye-grounds relaxes. It is presumed though not proved, that relaxation also occurs in the denervated area. Possibly the fall in blood pressure which takes place after operation causes a reflex dilatation of the vessels in the head somewhat similar to that found in animals<sup>8</sup> when the blood pressure falls to low levels. Whether the morbid changes in the fundi regress because of relaxation of the vascular spasm, reduction of the intracranial pressure or both cannot be affirmed with certainty. Measurement of the intraspinal pressure before and after operation has shown marked reduction when the pressure was elevated before operation. It seems that both factors are responsible for the changes in the eye-grounds.

It does not appear probable to me that a nonspecific operation would achieve the same results as root section. This opinion is strengthened chiefly by observation of one patient on whom a laminectomy was performed but who, for reasons of his own, refused the second stage of the operation, i. e., opening of the dura and section of the anterior spinal nerve roots. After operation the blood pressure soon regained its preoperative level and during the course of the next

six months had appreciably exceeded it. If the shock and trauma of the operative procedure in general are responsible for the effects of the complete operation this patient should have exhibited as well marked results as those in whom the anterior roots were actually severed, since laminectomy itself is by far the longest and most shocking part of the whole operation.

## MANAGEMENT OF POSTOPERATIVE DISTENTION AND ILEUS

THE USE OF PROSTIGMINE IN 175 CASES OF  
ABDOMINAL SURGERY COMPLICATED BY  
PARALYTIC ILEUS AND POST  
OPERATIVE DISTENTION

JOHN R. HARGER, M.D.

Attending Surgeon Cook County Garfield Park and Illinois  
Masonic Hospitals

AND

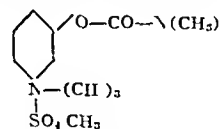
J. LESTER WILKEY, M.D.

Resident Surgeon Cook County Hospital

CHICAGO

One of the grave postoperative complications is intestinal atony. The paralysis and distention accompanying intestinal atony contributes materially to the mortality of diffuse peritonitis. The patient's dread of abdominal surgery is deeply tinged by fear of "gas pains," which are familiar even to the general public as the prominent symptom of a distressing, distention-ridden postoperative course.

It is not surprising therefore, that a wide variety of drugs, as well as a large number of mechanical procedures, have been developed to combat this unwelcome postoperative complication. One of these, physostigmine (eserine), was early used in the treatment of intestinal atony, but its stimulating action on the parasympathetic system may be evidenced not only by an increased intestinal peristalsis but also by bradycardia, dyspnea, miosis and a fall in blood pressure. Stedman and his co-workers<sup>1</sup> in their work on substances capable of inducing responses similar to those induced by physostigmine investigated the mono-alkylcarbamate acids. Their investigations culminated in the synthesis of dimethyl-carbamate ester of 3-hydroxyphenyl-trimethyl-ammonium methylsulfate, known as prostigmine. Its structural formula is



### PHARMACOLOGY

To quote, in part, from a recent editorial:

It [prostigmine] is a synthetic compound resembling physostigmine but differing chemically from this alkaloid by its less complicated structure and its greater stability. It is marked by a pronounced action on peristalsis, a less pronounced motic effect and an almost complete absence of cardiac by-effects. These characteristics have been carefully delineated

From the Cook County Hospital

1 Stedman E. Fine Chemicals Medicinal Substances and Essential Oils Parasympathetic Stimulants Reports of Progress of Applied Chemistry 16 621 1931 White A. C. and Stedman E. On the Physostigmine-like Action of Certain Synthetic Urethanes J Pharmacol & Exper Therap 41 259 (March) 1931

2 Aeschlimann J. A. and Reinert Marc The Pharmacological Action of Some Analogues of Physostigmine J Pharmacol & Exper Therap 43 413 (Nov) 1931

3 Peristaltic Stimulants Editorial Comment West J Surg Obst & Gynec 43 711 (Dec) 1935

8 Forbes H. S., Nasen C. I. and Wortman R. C. Cerebral Circulation Arch Neurol & Psychiat 37 334 (Feb) 1937 Fog Mogens Cerebral Circulation ibid p 351

through the work of Aeschlimann and Reinert, Berk, Feldberg, Rothschild, and many others. Inspection of the massive bibliography reporting the clinical use of this product leaves one with the definite conviction that it must possess clinical merits distinctly above that of therapeutic agents formerly used.

Certain of the studies, from well known clinics, are obviously scrupulously well controlled and cover very large numbers of cases. Reports covering the use of the drug running into well over a thousand cases indicate that it is harmless, clinically effective and has definite advantages over physostigmine.

The work of the authors mentioned<sup>4</sup> definitely established the efficacy of prostigmine as a peristaltic stimulant and the lessened incidence of toxic or untoward by-effects attending its use. The pharmacologic work of Aeschlimann and Reinert<sup>2</sup> established these facts. Physostigmine, in concentrations of 1:1,000, often stopped the isolated frog heart in diastole, while the same dilution of prostigmine was without effect beyond a slight decrease in the amplitude of contractions. A 1 per cent solution of physostigmine always stopped the frog heart in diastole, while prostigmine in like concentration had little or no effect. In doses up to 0.1 mg per kilogram prostigmine was found to have practically no effect on the blood pressure; this dosage is much more than that required to induce peristalsis. In doses approaching toxicity, the action of prostigmine is similar to that of physostigmine. Even in extreme dilution, 1:5,000,000 and 1:7,500,000, prostigmine still caused contraction of the isolated rabbit intestine. The effective intravenous dose stimulating the bowel in situ was found to be 0.02 mg per kilogram.

#### CLINICAL REPORTS

Levis and Axelman<sup>5</sup> used prostigmine to prevent postoperative atony and therefore began the administration of prostigmine shortly after, or at the time of, operation and continued medication as necessary. Prostigmine (1 cc of a 1:4,000 solution) was given at intervals of from four to six hours until the condition of the patient warranted discontinuance of the medication. The last injection of prostigmine was followed by the administration of a soap-suds enema. Levis and Axelman found prostigmine valuable in combating distention and "gas pains." Prior to the use of this agent, from 60 to 75 per cent of their patients complained of subjective symptoms or exhibited objective signs of intestinal atony; the administration of prostigmine reduced the percentage to a negligible minimum.

Schlaepfer<sup>6</sup> begins prostigmine injections (1 cc of a 1:2,000 solution) from eight to ten hours following the operation and repeats every eight hours until normal peristalsis is evidenced. Schlaepfer injected prostigmine intramuscularly and considers it "a very reliable agent to restore early normal peristalsis following laparotomy."

Baker,<sup>7</sup> in discussing the prevention of distention following kidney operations, says that, although a large enough series had not as yet been conducted, he is of

the opinion that prostigmine is the most efficient prophylactic measure available. Cases of obstinate distention, developing despite all efforts at prophylaxis, are usually amenable to insertion of a duodenal drainage tube and the injection of prostigmine (the 1:2,000 solution). The injection should be given at intervals of from thirty to sixty minutes until three or four doses have been given or until distention has been relieved. In stubborn cases, the duodenal tube should not be removed until active peristalsis is manifest.

Uznanski<sup>8</sup> applied prostigmine both before and after operation. He found prostigmine valuable both as a prophylactic against and as a treatment for paralytic ileus and distention.

We have used prostigmine (the 1:4,000 solution) over a period of three months at the Cook County Hospital in 175 cases of abdominal operations. As will be seen from the representative case reports briefly abstracted, the conditions necessitating surgery were varied. In addition to the use of prostigmine in surgical cases, we have also applied it in uremia with associated paralytic ileus with gratifying results, and in one case of obstructive jaundice with coronary heart disease. In this instance a slight rise in blood pressure was noted, which rise, however, aided materially in the prognosis. We have found in prostigmine a very satisfactory method of controlling postoperative distention. No signs of drug intoxication were seen, nor were any by-effects on the eye observed. There was no obvious evidence of hyperperistalsis and no complaints of excessive cramps. Except where noted, no adjuvant measures, such as enemas, stipes, heat cradle and the like, were used to enhance the action of prostigmine. The 1:4,000 solution of prostigmine methyl sulfate administered subcutaneously, was used in all cases. If possible, prostigmine medication was started preoperatively.

#### REPORT OF CASES

CASE 1—A S, a white youth, aged 18, admitted to the hospital Oct 28, 1936 with acute appendicitis of fifty three hours' duration, was found at operation to have a ruptured appendix, with diffuse peritonitis. The appendix was removed and the abdomen closed without drainage.

On the first postoperative day there was moderate distention. No peristaltic sounds were heard, and no gas or feces were passed.

On the second postoperative day there was distention, no gas or feces having been passed since operation. The patient was given one ampule of prostigmine (0.00025 mg of prostigmine methyl sulfate) at 10 a. m., the dose being repeated at 12 noon and 2 p. m. At 3:30 great quantities of gas were passed and peristaltic sounds were heard at the rate of 22 per minute.

On the third postoperative day prostigmine was given every two hours for four doses. The peristaltic sounds were 25 per minute. The feces and gas were passed twice in six hours.

The blood pressure on admission was 110 systolic, 80 diastolic, and at no time was it above 114/85 or below 108/90. The pupils appeared normal throughout the prostigmine medication. The patient did not complain of abdominal pain at any time during the course of prostigmine. An uneventful recovery ensued.

CASE 2—J V, a Negro, aged 36, admitted to the hospital Oct 29, 1936, with a history of a scrotal hernia of four years' duration had blood pressure of 128 systolic, 90 diastolic on admission. He was given two ampules of prostigmine 10 hours before operation and one additional ampule one hour before being taken to the operating room. Eight feet of intestine was found in the hernial sac at operation. The intestine, however, was entirely collapsed and was easily replaced into the abdominal cavity.

<sup>8</sup> Uznanski, M. E. A New Treatment for Paralytic Ileus. *Illn. J. M.* 70:567 (Dec.) 1936.

<sup>4</sup> Berk, Louis. Ueber diastolische Strophantinnwirkung am isolierten Froscherzen nach Vorbehandlung mit parasympathischen Giften. *Arch. f. exper. path. u. Pharmacol.* 168:638 (1932). Feldberg, W. Die Blut drucksende Wirkung der Chorda Lingualisreizung und ihre Beeinflussung durch Atropin. *ibid.* 170:560 (1933). Rothschild, Fritz. Ueber ein neues Darmperistaltikum Prostigmin. *Roche Med. Klin.* 28:363 (March 11) 1932. Aeschlimann and Reinert.

<sup>5</sup> Levi, W. K. and Axelman, E. L. Modern Method for Prevention of Postoperative Distention. *Am. J. Surg.* 16:308 (May) 1936.

<sup>6</sup> Schlaepfer, Karl. Relief of Postoperative Intestinal Atony with Prostigmine. *West. J. Surg.* 44:437 (July) 1936.

<sup>7</sup> Baker, W. W. and Andrus, E. C. Preoperative and Postoperative Care of Patients Undergoing Renal Surgery. Part I. Urological Aspects. *S. Clin. North America* 16:1171 (Oct.) 1936.



On the first postoperative day, peristaltic sounds were 14 per minute. No gas or feces were passed, but the patient was free from distention. No prostigmine was given.

On the second postoperative day there was moderate distention. The peristaltic sounds were reduced to six per minute, and the abdomen was definitely tympanic on percussion. Four ampules of prostigmine were given at two hour intervals. During the evening, four hours after the last dose, the patient passed considerable quantities of gas, but no hyperperistalsis occurred. The peristaltic sounds increased to seventeen per minute. A slight increase in blood pressure was noted at that time, 132 systolic, 94 diastolic.

On the third postoperative day both gas and fecal material were passed twice within seven hours. Prostigmine was continued three ampules being administered, at the rate of one every two hours. The blood pressure was 130 systolic, 90 diastolic, and, although a slight miosis was evident, the pupils reacted normally to light and in accommodation. The patient was given 2 ounces (60 cc) of liquid petrolatum. He volunteered the information that he felt "fine," and, except for a superficial wound infection which promptly responded to hot moist dressings, made an uneventful recovery.

CASE 3—C M, a white man, aged 23, admitted to the hospital Oct 29, 1936, had a diagnosis of subdiaphragmatic abscess. At operation the ninth rib was resected and the abscess drained.

On the first postoperative day, distention was present, and only three or four peristaltic sounds were heard per minute. No gas or feces were passed. Prostigmine was begun, and one ampule was given every two hours for four doses, the last injection being given at 5 p m. At 7 o'clock the peristaltic movements were from seventeen to twenty per minute, and gas was passed, resulting in considerable relief. A normal bowel movement occurred at 10 30.

On the second postoperative day, the patient was quite sick, with a temperature of 103.4 F, the abdomen was moderately distended, and peristaltic sounds were from twelve to thirteen per minute. Three ampules of prostigmine were administered during the space of six hours, resulting in an increase of peristaltic sounds to twenty per minute, and two bowel movements were accompanied by much gas.

On the third postoperative day the patient was extremely ill and markedly distended. A diagnosis of generalized peritonitis was made. Four further doses of prostigmine were given, the patient passed gas and had a normal bowel movement. Despite the improvement following the decrease in distention, he died at 8 10 p m.

There was no rise in blood pressure noted and the pupils remained normal in size throughout the postoperative course.

CASE 4—B M, a white man, aged 27, admitted to the hospital Nov 3, 1936 with a diagnosis of acute appendicitis of thirty six hours duration seemed in excellent condition, with no distention evident. At operation, an acute phlegmonous appendix was removed and the abdomen closed without drainage. There was no preoperative prostigmine medication.

On the first postoperative day the peristaltic sounds were twelve per minute. No distention was present but no gas or feces were passed.

On the second postoperative day at 8 a m, the abdomen was markedly distended, its crest being five finger breadths above the pubo ensiform line. No gas or feces had been passed, and peristalsis occurred at the rate of from three to five movements per minute. Two ampules of prostigmine were given immediately, and then one ampule every three hours for four doses. At 4 p m the abdomen was still distended with tympanic peristaltic sounds had increased to eighteen per minute, although no gas had been passed. At 7 30 a large quantity of gas, mixed with feces, was expelled. Two ampules of prostigmine were given during the night.

On the third postoperative day the abdomen was soft and only slightly distended. Prostigmine was given at 9 a m and again at 11 o'clock. Following a high enema the patient passed a large quantity of gas and feces and was subjectively much improved.

An uneventful recovery ensued. The patient became ambulant on the eighth day and returned home on the tenth day after

operation. The blood pressure rose from 134/86 to 142/98 during prostigmine medication, no pupillary changes were noted at any time.

CASE 5—A M, a white man, aged 32, admitted to the hospital Nov 4, 1936, had fallen from a scaffold while painting. He was in shock, with the pulse 140, temperature 97.6 F, respiration rate 32, blood pressure 80/65, and the skin cold and clammy. The blood count was hemoglobin 95 per cent, red blood cells 4,800,000, white blood cells 9,400. Because of the abdominal distention, the possibility of a ruptured viscus was considered. However, a catheterized specimen of urine revealed no blood, and fluoroscopy showed no free air under the diaphragm or above the liver. There were no masses felt in the abdomen and rigidity was not apparent. The patient responded to external heat, intravenous fluids, stimulants and reversed Fowler's position, twelve hours after admission he was considered to be out of shock, with pulse 100, respiratory rate 22, blood pressure 110/80, temperature 99.8 F. Marked distention was present, however, and an enema was given without results. No gas or feces had been passed since the accident. Two ampules of prostigmine were given at once, and subsequently one ampule was given every two hours for five doses. Within eight hours the peristaltic sounds had increased from two to three per minute to from fourteen to twenty-one, and the patient passed much gas and some fecal material. The next day three ampules of prostigmine, one every two hours, were injected. Two bowel movements resulted.

The patient suffered several fractured ribs and paralytic ileus developed. The results of prostigmine medication were most satisfactory, with no evidence of blood pressure or pupillary changes.

CASE 6—J V, a white man, aged 68, was transferred, Nov 4, 1936, from the medical ward with a diagnosis of regional ileitis presenting partial obstruction. Although slight distention was present, prostigmine was not administered preoperatively. At operation, a regional ileitis involving the lower 12 inches of the ileum was found, the involved wall being markedly thickened, with distended bowel above the indurated area. Resection was not done but an anastomosis was performed above the obstruction.

On the first postoperative day the peristaltic sounds were seven per minute and there was moderately severe distention. A Levine tube was inserted and parenteral fluids were administered.

On the second postoperative day the distention was increased. The patient appeared quite ill. At 8 a m two ampules of prostigmine were given, followed by an equivalent dose at intervals of two hours. No gas was passed all day, however.

On the third postoperative day prostigmine, one ampule every two hours was continued. At 1 p m the peristaltic sounds had increased to twenty-two per minute and the patient passed a huge quantity of gas mixed with considerable fecal material. At 8 o'clock no distention was evident.

On the fourth postoperative day one ampule of prostigmine was given every three hours. At 4 p m a normal bowel movement occurred, and gas was passed freely all day.

The blood pressure and pupils remained unchanged throughout the postoperative course. An uneventful recovery ensued.

CASE 7—A M, a white man aged 32, admitted Nov 6, 1936 with a diagnosis of chronic appendicitis, presented an excellent opportunity for a study of the value of preoperative prostigmine medication. He was given two ampules three hours before and one ampule immediately preceding operation. At operation the bowel was entirely collapsed and consequently presented no difficulty during the intra abdominal manipulations necessary for the removal of the appendix.

The first postoperative day no distention was present, some gas was passed, but the patient had no bowel movement.

The rest of the postoperative course was entirely uneventful. Further prostigmine medication was not needed. There was no distention at any time, and a normal bowel movement occurred on the third postoperative day. A semisolid diet was given on the fifth postoperative day and the patient was ambulant on the eighth day. No change was noted in the patient's blood pressure, pupils or pulse as a result of prostigmine medication.

CASE 8—N A, a white boy, aged 14 years, admitted Nov 6, 1936, following injury to the pelvis sustained in an automobile accident, was in severe shock and, in addition, presented a rigid abdomen with a definite mass in the right lower quadrant. He was treated for shock, during which time (six hours) it was decided that laparotomy should be performed in order to determine the extent of injury. He was given two ampules of prostigmine before surgery. When the abdomen was opened, the entire bowel was collapsed, making discovery of a large retroperitoneal hematoma a simple matter. The abdomen was closed without further intervention.

The first postoperative day the general condition was poor. A scultetus binder was applied, and because the peristaltic sounds were few, from three to four per minute, and no gas or feces had been passed, Wangensteen decompression was instituted. Enemas were also employed without results. A diagnosis of paralytic ileus was made and solution of posterior pituitary, one ampule every two hours for four doses, was given without relief.

On the second postoperative day, prostigmine medication was reinstituted, one ampule being injected every two hours. After the fourth dose the peristaltic movements had increased to ten per minute, and the patient passed some gas, thereby relieving the distention appreciably. Seven hours later, the prostigmine being continued throughout, a bowel movement occurred.

The patient recovered satisfactorily although the subsequent course was rather hectic. Two transfusions were necessary, and occasional enemas were required to enhance the action of prostigmine. This case is particularly interesting not only because of the extreme degree of ileus but also because frequent prostigmine dosage, even in a 14 year old boy, resulted in no untoward effects. The frequency of administration was double that suggested by the manufacturer, as indeed, it was in most of our cases but no signs of toxicity occurred.

CASE 9—M D, a Negro, aged 39, admitted to the hospital Nov 7, 1936 with a diagnosis of chronic cholecystitis and cholelithiasis, in addition presented evidence of marked bowel spasticity and distention. Two ampules of prostigmine were given at 9 p m the night before the operation another ampule at 8 a m the following morning and one immediately preceding the operation. Both the large and the small bowel were found to be totally collapsed. The gallbladder was easily found and removed without difficulty and the abdomen was closed with the liver bed drained.

On the first postoperative day there was no distention, the condition was good.

On the second postoperative day there was slight distention no gas or feces were passed there was some vomiting.

On the third postoperative day the abdomen was moderately distended. Solution of posterior pituitary, two ampules, was given at 8 a m and then one ampule every two hours for distention. Gas was passed at 4 p m but the marked elevation of blood pressure, 20 points systolic, convinced us that solution of posterior pituitary should not be used further.

On the fourth postoperative day prostigmine was administered for distention—two ampules at once, repeated in two hours and followed by one ampule every two hours for four doses. At 9 p m both gas and feces were passed. The blood pressure remained normal.

On the fifth postoperative day gas and feces were again passed, with relief of distention. Prostigmine was given every two hours for four doses, with excellent objective and subjective results. After the fourth day slight contraction of the pupils was noted, and from then on an uneventful recovery ensued.

CASE 10—B V, a white man aged 52, admitted to the hospital Nov 17, 1936, with a diagnosis of acute intestinal obstruction, had suffered for two days from vomiting abdominal distention and complete obstipation. A cecostomy was performed, on operation, the site of obstruction was thought to be the rectosigmoid junction.

On the first postoperative day the patient's condition was poor. Repeated enemas returned clear.

On the second postoperative day a slight quantity of gas escaped when the cecostomy was opened, along with a small

amount of fecal material. Distention was extreme, but no further measures were instituted.

On the third postoperative day gas continued to be expelled in small quantities through the cecostomy. At 8 a m two ampules of prostigmine were given, and one ampule was given every two hours thereafter for six doses. At 6 p m a large quantity of gas was expelled, together with considerable fecal material.

On the fourth postoperative day, distention was much reduced. Feces and gas were passed freely through the cecostomy, and the patient's condition was considered excellent. Four doses of prostigmine were given, one ampule every three hours.

On the fifth postoperative day, distention was completely relieved, there was no pain and gas and feces were passed freely. No further prostigmine was given.

The subsequent course was entirely without incident. An exploratory laparotomy on the twentieth postoperative day revealed the presence of a carcinoma of the sigmoid with extensive metastases. The blood pressure remained normal throughout prostigmine administration the pupils however, became slightly sluggish in accommodation and motile.

CASE 11—W a white man, aged 47, admitted to the hospital Nov 18, 1936, in severe shock, showed evidence of peritonitis and pneumoperitoneum. No preoperative medication was administered. At operation a ruptured gastric ulcer was found, and fluid and gastric contents were found in the abdominal cavity. The ulcer was sutured and the abdomen closed without drainage.

On the first postoperative day, marked distention and tympanites occurred. Peristaltic sounds were only four per minute. Wangensteen decompression was begun and parenteral fluids were given. No feces or gas were passed.

On the second postoperative day, distention was still marked no gas was passed nor were any peristaltic sounds heard. Solution of posterior pituitary was given one ampule every two hours for five doses. No gas had been passed by mid night, and enemas were entirely without results.

On the third postoperative day at 8 a m two ampules of prostigmine were administered followed by a similar dose at 10 o'clock. Doses of three ampules were then given at intervals of two hours. At 2 p m a low saline enema resulted in the expulsion of much gas and fecal material.

On the fourth postoperative day distention was much diminished and the patient was passing gas freely. Prostigmine was continued in one ampule doses every three hours for four injections and a normal bowel movement occurred at 7 p m.

On the fifth postoperative day peristaltic sounds were eighteen per minute and the distention had vanished. The patient went on to recovery with no complications. The blood pressure and the eyes were normal throughout.

#### COMMENT

Prostigmine has a wide margin of safety. Although intervals between doses of from four to six hours are recommended, and but one ampule per dose we have constantly given the drug at two hour intervals to patients ranging in age from 14 to 68 years with no demonstrable ill effects. Reports hitherto have recommended longer intervals than two hours. Our results convince us that prostigmine may be given more frequently and in larger doses with assurance of a satisfactory response and no danger of untoward by-effects.

#### SUMMARY

1 Prostigmine was used in 175 cases.

2 Prostigmine, a 1:4,000 solution of the dimethylcarbanic ester of 3-hydroxyphenyl-ammonium methylsulfate, is a satisfactory agent for the prevention or treatment of distention and paralytic ileus.

3 In our series of cases the administration of prostigmine was followed by excellent results with a low incidence of by-effects.

4458 West Madison Street

CONTRACEPTION IN PRIVATE  
PRACTICE

A TWELVE YEAR EXPERIENCE

LOVETT DEWEES, M.D.

APDMORE, PA.  
AND

GILBERT W. BEEBE

Of the National Committee on Maternal Health Inc.  
NEW YORK

The contraceptive service reported here developed within a general family practice in a residential suburb of a large city. The initial impulse to study contraception came twenty years ago from the requests of professional patients acquainted with the beginnings of a literature on the subject. An enduring stimulus has been provided by the succession of women patients in distress from unwise pregnancies. In the last ten years it has become a routine matter to discuss contraception with postpartum patients and to teach better methods whenever they are needed and welcomed.

## INDICATIONS

The indication for contraceptive knowledge and advice is, broadly considered, marriage. Of course, some patients have come in the late thirties or early forties because they wished to have no more children, and others have been referred because of obvious physical or mental contraindications to pregnancy. But in recent years an increasing number of young women have come to learn how to plan and space their children. Those advised premaritally have sought to postpone the first pregnancy while gainfully employed or until they felt better adjusted. Women usually need from one to two years of protection after childbirth before conceiving again.

## METHODS

About 94 per cent of all the patients advised have been given the occlusive vaginal diaphragm with jelly. This paper, therefore, is essentially a report and discussion of the use of that method. It has become the preferred contraceptive of a large majority of couples. The most frequent structural conditions interfering with the fit of the diaphragm have been cystocele and marked relaxations of the pelvic floor and vaginal walls with some uterine descent. Retroversion of the uterus has seldom been a contraindication, although it has often required a special manner of insertion. Sound anterior vaginal structure and other conditions which allow the rim to stay well up against the rear face of the symphysis pubis are essential to the use of the circular diaphragm. The Matrisalus was designed to support a sagging anterior wall but in this series has rarely been successfully adjusted. In recent years a Dumas pessary, a rather broad, shallow, all-rubber cap, has been found to fit well high behind or beyond the bulging cystocele.

In early years only starch-glycerite jellies with 1 or 2 per cent lactic acid were prescribed for use with the diaphragm. In time these have been replaced by modified starch-glycerite and by vegetable gum preparations also dependent on acidity<sup>1</sup> for spermicidal action. Modified soap creams, usually containing paraformaldehyde, have also been employed. The variety of modern jellies makes it possible to individualize the prescription of jelly, and the trend away from high

percentages of glycerin has reduced the frequency of complaints of messiness. Because one patient will complain of this jelly and another of that, judgment or trial and error must find the appropriate prescription in each case.

Premarital patients have often been advised in the use of the condom or condom with jelly and later fitted with the diaphragm, but a large proportion of the premarital patients readily learn the diaphragm technique. Premarital examination and discussion present real opportunities for educational and preventive work.

For the details of fitting and teaching, the reader is referred to the discussion in *Control of Conception* by Dickinson and Bryant.<sup>2</sup> Judgment in fitting comes with experience and repeated check-up examinations. A routine check-up soon after fitting has not always been found possible but is essential for premarital and recently married patients. Emphasis has rather been placed on adequate initial instruction. Success in teaching depends on painstaking work with each patient. From a half to three quarters of an hour may be required for office explanation and practice by the patient.

## CHARACTERISTICS OF SAMPLE STUDIED

In the twelve years that ended in 1936, contraceptive advice was given to 884 white patients. One fourth of these were of the premarital group. The median<sup>3</sup> age at the first contraceptive consultation was 27.3 years, and the median duration of marriage 4.3 years for those who were already married. The median married patient reported two previous pregnancies, but one fourth of the married women had never conceived. The patients came mainly from upper middle class homes with annual incomes ranging roughly from \$3,000 to \$10,000. One fifth might be termed wealthy while three fourths were of the professional or business middle class and one twentieth of the laboring class. Seventy per cent of those who reported their education had received some college training or the equivalent. Twenty-three per cent had progressed no further than high school and 7 per cent no further than elementary school. Ninety-four per cent were Protestants.

## NATURE OF THE INVESTIGATION

The patients who were also part of the family practice usually had complete follow-up records because of the many opportunities to study them. The patients in a part of the series, increasing rapidly since 1930, were referred by their friends or physicians. Since they applied only for contraception, they gave less opportunity for close observation. One fourth of all those advised were never reached again for follow-up.

In 1936 a cooperative arrangement was made with the National Committee on Maternal Health for an intensive study of the available case material, and a follow-up by letter and interview was attempted in all cases in which the history was incomplete. The letter elicited slightly more than a 50 per cent response. Analysis of the case material extant prior to this follow-up indicates that the women who answered the letter had had proportionately the same number of unplanned pregnancies as those who failed to answer. But it also shows that those who answered had previously reported relatively many more planned pregnancies than those who did not respond.

<sup>2</sup> Dickinson R. L. and Bryant L. S. *Control of Conception* Baltimore: Williams & Wilkins Company, 1931.

<sup>1</sup> For a discussion of acidity see Shedlovsky L. (Some Acidic Properties of Contraceptive Jellies) *J. Contraception* 2: 147-153 [Aug-Sept 1937].

<sup>3</sup> That is, 50 per cent were above and 50 per cent below this age. Because of the nature of the distributions the median is a more representative value than the mean.

## ACCEPTABILITY OF DIAPHRAGM AND JELLY

The frequency with which patients have persevered with a contraceptive method is one measure of its acceptability. Of all those on whom reports are available, 83 per cent were using the method at the time of the last follow-up entry. But many of those who stopped no longer needed protection against pregnancy, as table 1 indicates. The refusal rate, therefore, may well be from 15 to 20 per cent, but lack of follow-up on one fourth of the patients originally seen seriously limits the value of this estimate. The low frequency of failure as a reason for discontinuance results from two conditions: first, some patients who had unplanned pregnancies recognized the fault as their own and resumed the method with success later, and, second, a number of the patients reporting unplanned pregnancies gave no indication of whether or not they resumed the method at the termination of the pregnancy. One might expect failure with the method to be given greater relative importance in a list

TABLE 1—*Alleged Reasons for Discontinuing Diaphragm and Jelly*

Reason for Discontinuance	Patients Known to Have Stopped	
	Number	Per Cent
Cessation of exposure to risk of pregnancy*	20	24
Objections on the part of the wife	20	24
Objections on the part of the husband	11	11
Preference for another method	16	15
Failure with the method†	12	12
Lack of confidence	3	3
Other reasons or several	6	6
Reason unknown	5	5
Totals	107	100

\* Cessation of exposure includes instances of sterilization, menopause, separation or divorce and pelvic inflammatory disease.

† Patients who felt that their unplanned pregnancies could not be attributed to their own carelessness or errors.

of reasons for discontinuance. The average patient who stopped using the method had tried it for less than nine months, and 45 per cent of those who stopped did so within six months.

While there has been no systematic study of the complaints made by patients who continued using the method, spontaneous objections entered on the records have been tabulated. Six per cent of those followed up complained of discomfort or annoyance from the diaphragm and jelly, and half of the objections were of outright discomfort on the part of the wife. A fourth of these were complaints against the necessity for advance preparation and a sacrifice of best feeling.

In consulting with patients on their contraceptive problems, the doctor has come to appreciate the limitations of the method: it is a less than ideal procedure. A few notes on unfavorable reactions illustrate this point: "I hated it!" "Backache after several hours." "Advance preparation tends to diminish desire." "It produced too much secretion and caused restlessness." "The ideal method would be a suppository or a perfected jelly." The 'cap,' while certainly useful, is a nuisance.

The impression is strong in the physician's mind, although it is not often on record, that many of those who abandoned the method after a trial were women who derived little or no satisfaction from coitus with or without contraception. The 15 or 20 per cent who found the method unacceptable constitute a group

urgently in need of individualized counsel and prescription, and the physician must be prepared to offer other advice even though the risk of pregnancy is greater than with the diaphragm and jelly. As a matter of fact, the risk of pregnancy with any common method can be reduced by careful instruction.

It is equally apparent that the diaphragm and jelly method has offered real advantages to a large majority of patients in private practice seeking contraceptive advice. It is definitely superior to other present methods in point of acceptability to these patients and will serve reasonably well until ideal procedures are developed.

## EFFECTIVENESS OF DIAPHRAGM AND JELLY

Published data on the clinical effectiveness of diaphragm and jelly, and in fact almost all data on the clinical effectiveness of contraceptives, have been based on inadequate methods of analysis. The customary procedure has been to enumerate the number of patients who suffered unplanned pregnancy, despite faithful following of instructions, and then to state this number as a percentage of the total number studied. The contraceptive method is then said to have yielded the stipulated percentage of failures. The major statistical defect of this method lies in its neglect of the time factor, overlooked in no other field of vital statistics. The computation of probabilities of birth, death and other vital events is always with reference to time. Unless one takes time into account when measuring the clinical effectiveness of contraceptive methods, one inevitably records higher percentages of failure as longer periods of time are observed. For example, it is shown that with 100 normal users of a particular contraceptive method three is the average number of pregnancies per year of use, then it is clear that the average number of pregnancies for 100 patients during five years will approach fifteen and that the average for ten years will approach thirty. In other words, the application of this technique gives percentages of failure which have no specific meaning because time is not held constant.

For the reason that they bring time into the calculations in a fashion similar to that currently used for measuring the incidence of vital phenomena, the best available statistical procedures are those developed for fertility measurement by Pearl<sup>4</sup> and by Sir and Notestein.<sup>5</sup> Their methods<sup>6</sup> permit the calculation of a pregnancy rate which is 100 times the number of pregnancies divided by the number of woman-years<sup>7</sup> of exposure to risk of pregnancy. Exposure to the risk of pregnancy is measured in months and years and is derived by subtracting from the years of marriage falling between puberty and the menopause the time during which the wife was pregnant or was known not to be exposed to the risk of pregnancy because of sterility or abstinence. In addition, in this study, one month in excess of each reported period of gestation has been deducted as an allowance for the puerperium. No consensus has been reached as to the best method for controlling the factor of lactation, which is thought

4 Pearl Raymond. Contraception and Fertility in 2000. *Writ. in Human Biol.* 4: 363-407 (Sept.) 1932. Factors in Human Fertility and Their Statistical Evaluation. *Lancet* 2: 607-611 (Sept. 9) 1933.

5 Sir Reginald K. and Notestein F. W. (a) Effectiveness of Birth Control (Milbank Memorial Fund Quart.) 12: 57-68 (Jan.) 1934. (b) Effectiveness of Birth Control: A Second Study. *ibid.* 13: 162-171 (April) 1935.

6 Pearl has perhaps more often expressed his results as pregnancies per hundred computed ovolutions.

7 One hundred woman-years would be the exposure of 100 women for twelve months each, ten women for 120 months, or the equivalent.

to be associated with infecundity<sup>8</sup> through absence of ovulation and which therefore probably exerts some yet unmeasured influence on all pregnancy rates except those for first pregnancies and for planned pregnancies. Obviously, pregnancy rates may be computed for exposure with or without contraception, and the difference between a rate for noncontraceptive exposure

TABLE 2—*Pregnancy Rates from Other Studies When No Contraception Was Used and When Some Contraception Was Used, and Pregnancy Rates for this Series Before Advice Was Given*

Order of Pregnancy*	Pregnancy Rates from Other Studies				Pregnancy Rates from This Study Before Advice Was Given	
	No Contraception Used		Contraception Used†			
	Pearl‡	Stx and Note- stein§	Beebe and Gamble	Stx and Note stein§		Beebe and Gamble
All pregnancies	107	168	99	28	42	41
First preg- nancies	154	268	119	41	52	74
Subsequent pregnancies	86	100	86	27	40	31

\* In view of the significant differences between rates for first and rates for subsequent pregnancies the distinction is kept here.

† The rates are based on only that portion of each patient's experience when prelinic contraception was used. Pearl's rates for contraceptors include their experience while not relying on contraception and for that reason are not strictly comparable. His rates for all pregnancies of whites in New York and Chicago were 68 and 63 respectively.

‡ Pearl Raymond Fertility and Contraception in New York and Chicago J A M A 108 1385-1390 (April 24) 1937. Rates for all white women have been calculated from the data there given. Pearl's rates are not by order of pregnancy but by parity of women. In consequence his rates for multiparas include some experience at the higher first pregnancy rate and have been adjusted on the assumption that the multiparas had first pregnancies at the same rate as the primiparas. The unadjusted rates are 107, 154 and 99.

§ Stx and Note-stein §§

|| Beebe G W and Gamble C J. The Effect of Contraception on Human Fertility unpublished data from a manufacturing district in Philadelphia.

and a rate for contraceptive exposure is one measure of the effectiveness of contraception in reducing the chance of pregnancy.

As a basis for estimating the probable fertility reduction accomplished by the use of diaphragm and jelly in this series, table 2 draws on other studies for the pregnancy rates of patients when they avoided contraception and when they used it in some form. Table 2 also includes the pregnancy rates of the patients in this series before they came for contraceptive advice. The rates for noncontraception, while differing markedly with respect to first pregnancies, indicate that pregnancies may be expected at the minimum rate of 100 for each 100 woman-years of exposure when all pregnancies are studied, and from 85 to 105 when second and subsequent pregnancies are considered. Ordinary untutored contraception results in rates from 25 to 50, with differences depending largely on the order of pregnancy, the methods used and the care exercised. The low rates found in this study for the period before contraceptive advice was given indicate an extensive resort to contraception. Since these rates are based on all experience, both contraceptive and noncontraceptive, the contraceptive efforts of the patients in this series were, even before they sought medical advice, above average in efficiency.

While relying on diaphragm and jelly, the patients in this series became pregnant at a rate which is only from 4 to 7 per cent of the rate at which women conceive while habitually practicing no contraception.

8 Cooper J M. Birth Control. Washington: National Catholic Welfare Council, 1923. A summary of medical literature appears on pp 71-73 and 95.

Otherwise stated, their use of the diaphragm and jelly was from 93 to 96 per cent effective as compared with habitual noncontraception. It should be noted that this statement of effectiveness is entirely different from a statement of the percentage in which the method did not fail. Table 3 gives the details of exposure, pregnancies and pregnancy rates specific by duration of marriage interval. These results are based on the experience of 542 patients, 342 having been excluded as follows: 217 for lack of follow-up on diaphragm and jelly, seventeen for possible sterility, eighty<sup>9</sup> for lack of complete data, and twenty-eight for lack of exposure to the risk of pregnancy when using diaphragm and jelly.

The pregnancies recorded are the unplanned pregnancies of women who used diaphragm and jelly but who in many instances did not themselves blame the method because they relied on supplementary methods or were definitely careless. The rates<sup>10</sup> are based on all unplanned pregnancies rather than on failures of the method for the reason that, to delete pregnancies apparently resulting from nonuse or technical errors of the patient would be justified only if there were a corresponding deduction of the exposure of patients when they took chances without becoming pregnant. Unfortunately, the latter cannot even be estimated. It is to be expected, however, that a rate based on such a selected experience would be even lower than the rate of six derived in table 3. Furthermore, any estimate of the number of unplanned pregnancies which may be called failures of the method is, at best, based on inference. Finally, one is clinically interested in the results of a method as used, and one expects the regularity and technical competence of the patient to be in part at least influenced by the acceptability of the method. Different population groups, precisely because they may be expected to employ the same method with varying regularity and skill, will probably have somewhat different rates while using it.

TABLE 3—*Months of Exposure, Unplanned Pregnancies and Unplanned Pregnancy Rates of Patients Depending Wholly or Partly on Diaphragm and Jelly, by Order of Pregnancy and by Duration of Marriage*

Order of Pregnancy and Duration of Marriage	Months of Exposure	Number of Unplanned Pregnancies	Unplanned Pregnancies per 100 Women—Years of Exposure
All pregnancies	15 509	80	6
First pregnancies	4 290	21	6
Subsequent pregnancies	11 219	59	6
By duration of marriage interval			
0-50 years	2 617	21	10
51-100 years	4 2	31	9
101-150 years	3 144	6	2
151-200 years	1 071	1	1
201-300 years	154	0	0

A rough measure of the comparative effectiveness of the previous methods with the diaphragm and jelly may be obtained by contrasting the second and subsequent pregnancies for the two periods. While using diaphragm and jelly, these patients experienced fifty-nine second or subsequent pregnancies, if the chance of pregnancy had not been reduced by the diaphragm

9 The patients thus excluded had reported six unplanned pregnancies and hence had a lower relative incidence of unplanned pregnancy than the included patients.

10 The pregnancy rates are weighted mean probabilities of unplanned conception stated in terms of pregnancy per hundred woman-years of exposure.



and jelly but had continued at the previous level, there would have resulted 242 pregnancies. In other words, the chance of pregnancy was reduced about 75 per cent. Even if as many as half of the earlier pregnancies were planned, the chance of unplanned pregnancy was reduced approximately 50 per cent by diaphragm and jelly.

Patients reporting unplanned pregnancies were questioned or examined, or both, for possible explanations for their failure. Only 29 per cent of those who reported unplanned pregnancies had histories of careful use which gave no explanation for their conceptions. The conditions which may have led to conception are given in table 4. At most, forty-two of the eighty-six unplanned pregnancies might be termed failures of the method. The relative incidence of failure among the 622 users of diaphragm and jelly who have been followed up may therefore be stated as roughly 7 per cent. The value of this estimate for comparative purposes may be greatly enhanced if it is borne in mind that the average duration of exposure with diaphragm and jelly was approximately twenty-nine months, and the average length of follow-up thirty-nine months.

TABLE 4—Possible Reasons for Unplanned Pregnancies Among Users of Diaphragm and Jelly Method

Possible Reason for Unplanned Pregnancy	Unplanned Pregnancies	
	Number	Per Cent
Omission	25	32
Error in technique	15	19
Poor fit initially	6	7
Poor fit through changes in position of cervix and uterus	2	3
Diaphragm worn over support pessary	1	1
Defective diaphragm	1	1
Reason unknown but failed to return for check up on technique	1	1
No information, but failure known	6	7
No reason known technique satisfactory	21	29
Totals	86	100

Comparisons have been made between those reporting unplanned pregnancies and the remainder of the patients in order to ascertain whether there were important differences that might explain why some patients had unplanned pregnancies while others did not. From the information available, the only important difference found was in fertility before contraceptive advice was sought. Those reporting unplanned pregnancies with diaphragm and jelly were more fertile<sup>11</sup> before their first visit as well as after. Before the contraceptive consultation their first pregnancy rate was more than twice as high (174 in comparison with 69) as that of other patients in the series, and their rate for subsequent pregnancies was 47 as compared with 30 for the remainder of the sample.

#### PLANNED PREGNANCY

Not the least important aspect of the control of conception is the planning of conception. In this series 131 patients have reported 167 planned pregnancies spaced by prescribed contraceptive methods. That those who planned their pregnancies were a selected group is indicated by the observation that more than 40 per cent were first seen before marriage,<sup>12</sup> while only 20 per cent of the nonplanners were seen before marriage. The planners also were younger, better educated and,

if married, had been married a shorter time and had experienced fewer pregnancies than the nonplanners.

Of those who were seen premaritally, three fourths conceived their first planned pregnancy within two and a half years after marriage, an additional fifth within four and a half years, and all within six and a half years. Of those who were married at the first visit but who had previously not been pregnant, one third conceived their first planned pregnancies within two and a half years after marriage, and an additional half within four and a half years.

The time required for conception was reported for 136 planned pregnancies. Fifty-one per cent were conceived within one month, 76 per cent within three months and 90 per cent within six months.<sup>13</sup> When the months required for conception were summed up, the total of 400 months gave for this special form of noncontraception a pregnancy rate of 408, which is from two to four times as great as rates reported for habitual noncontraception. This rate compares with that of 446 obtained by Stix and Notestien<sup>14</sup> with a sample roughly four times the size of the present one. The rate of 408 would be lowered to 360 by the inclusion of the five patients who had been attempting conception for from eight to fourteen months at the time of their last follow-up and who were among the seven teen possibly sterile women excluded from the computation of pregnancy rates in table 3. The indication is clear that contraceptive practice such as is discussed here does not interfere with the basic capacity to conceive. On the contrary, these patients exhibited high fertility when they ceased contraception for planned pregnancy.

#### SUMMARY

In twelve years contraception has become an important part of a general medical practice. The 884 white patients advised have been predominantly from upper middle class homes, of Protestant background, and college trained or the equivalent. Ninety-four per cent have been taught the diaphragm and jelly method. Analysis of the experience of the 662 patients who have been followed up indicates that:

1 The acceptance rate of the diaphragm and jelly method was 83 per cent—high enough to justify its routine prescription in private practice and low enough to illustrate the need for other prescriptions to a significant minority.

2 The chance of unplanned pregnancy, while relying wholly or partly on diaphragm and jelly, may be stated as six pregnancies per hundred woman-years of exposure for this group. This rate represents a reduction of from 93 to 96 per cent in the risk of pregnancy incurred by women habitually practicing no contraception.

3 Half of the eighty-six unplanned pregnancies followed errors or omissions that might account for conception.

4 The successful use of diaphragm and jelly did not retard conception after the method had been set aside for planned conception. The time required for conception was reported for 136 of the 167 pregnancies known to have been planned. Half were conceived within one month and three fourths within three months.

Times Medical Building, Ardmore, Pa.—2 East One Hundred and Third Street, New York.

11 This difference may reflect differences in basic fecundity in resort to contraception or in the skill and regularity with which chosen methods were practiced.

12 If the new patients of the last year are excluded and only patients first seen between 1925 and 1936 considered, one third of all those seen premaritally later reported planned pregnancies.

13 In a smaller series of sixty-eight planned pregnancies reported by patients seeking contraceptive advice, 37 per cent were conceived within one month, 77 per cent within three months and 88 per cent within six months.

## RATIONAL USE OF ACACIA IN TREATMENT OF THE NEPHROTIC SYNDROME

SAMUEL A. SHELBURNE, M.D.  
DALLAS, TEXAS

The principal fault in the nephrotic syndrome is the loss of protein through damaged glomeruli. The proteins in the blood plasma decrease, so the effective osmotic pressure of the plasma is decreased and an abnormal amount of fluid escapes into the tissue, producing edema. This condition appears only after much of the body protein, such as muscles, has been depleted.<sup>1</sup> Hartmann<sup>2</sup> in 1933 presented a series of cases of the nephrotic syndrome in children in which he raised the effective osmotic pressure of the plasma by giving large amounts of acacia intravenously and profuse diuresis resulted. Subsequent experience has shown that if a sufficient amount of acacia is given to patients with the syndrome who have no renal insufficiency, diuresis will always occur. The effect unfortunately is only temporary, as the acacia is excreted rapidly (60 per cent in seven days). Obviously one cannot continue to inject acacia every week indefinitely, as there is reason to believe that it accumulates in the liver and the spleen<sup>3</sup> and presumably if given over a long period might cause some ill effect.

Indeed, McCann,<sup>4</sup> in his review of Bright's disease for 1936, after discussing the work of Dick,<sup>3</sup> said "In view of such experience the further use of acacia seems unwarranted." However, critical analysis of the work of Dick and his associates will reveal that their conclusions are subject to question. They attempted to show, in children and in dogs, that acacia interferes with the production of protein. After injections of acacia they observed in both children and dogs a fall in the plasma protein content. The profound changes in blood volume associated with rapid diuresis or with the injections make estimations of the plasma protein inaccurate, even though the results of determinations of the blood volume were available, therefore it becomes clear that conclusions drawn from their experiments are of little value. If one judges by the experience of Hartmann and others, these experimenters used larger doses of acacia than were necessary. Furthermore, patients 1 and 2 of their series were entirely unsuitable for the experiments as they were clearly in the acute stage of the disease and were subject to the highly variable conditions found in that stage. Most of the patients were infants to whom it would be difficult to give a high protein diet, and without this diet the administration of acacia must be repeated indefinitely, which might eventually be harmful.

As a result of such studies and opinions, the use of this valuable asset in the management of the nephrotic syndrome has been largely abandoned. However, if acacia is used only to eliminate the edema and a diet extremely high in animal protein is instituted from the beginning, a definite increase in the plasma protein content will occur in most cases and will prevent the recurrence of edema. Repeated doses of acacia will then not be necessary.

I shall present three typical cases of chronic nephritis with the nephrotic syndrome in which acacia was an invaluable adjunct to the treatment. The edema has not returned in any of the three cases, though acacia was used only during the first few weeks and they have been observed over periods of from one to three years. I have found in each case a definite increase in plasma protein, a result contrary to previous reports. The patients were first seen as physical and psychologic invalids, and they have been returned to normal life, one is in school and the others are making good incomes. It is impossible to say how long this well being will persist. Oddly enough, patient 1 seems to be completely cured, as he has had no albuminuria during the past year. It is important to emphasize that there were no infants in this series, as it is clear that this regimen is not easily adaptable to infants. I therefore make a plea for the use of acacia to eliminate edema while the more lasting beneficial effects of a diet high in animal protein are instituted. The patients feel much better and are psychologically improved when the edema disappears.

## REPORT OF CASES

CASE 1.—W. L., a Negro boy, aged 8, was admitted to Parkland Hospital Aug. 12, 1935, complaining of swelling of the face, abdomen and extremities. He had been well until May 1935, when swelling of his face associated with a severe infection of the upper respiratory tract developed. These symptoms subsided within three weeks and he was well until July 1935, when gradually increasing swelling of the face, abdomen and legs developed, he did not feel sick in any other way. He was admitted to the hospital July 15, where he remained for five days, and the edema completely disappeared. The attack was doubtless acute glomerulonephritis, as the plasma protein content was 6.6 Gm., the albumin content was 4.6 Gm. and the urine showed a 3 plus reaction for albumin, which, however, soon became negative. The patient remained well until August 1, when increasing anasarca developed.

My examination revealed that the boy was small and had edema of the legs and the face and had marked ascites. He did not appear ill. The blood pressure was 110 systolic, 70 diastolic, the pulse rate 90 and the respiratory rate 25. The tonsils were normal, the pupils reacted to light and in accommodation and the ophthalmoscopic examination gave negative results. The heart was not enlarged, and the sounds were normal, the lungs were clear. The abdomen was full of fluid, and there was edema of the scrotum and penis. The results of the laboratory examination are shown in table 1. The outstanding observations were persistent albuminuria, a normal blood urea content, a blood cholesterol content of 220 mg. and a plasma protein content of 5 Gm. The Mosenthal test was negative, and there was no anemia. The Wassermann and the Kahn reaction were negative. An intravenous pyelogram showed nothing significant. The diagnosis was chronic nephritis with the nephrotic syndrome.

The patient was confined to bed on admission and given a high protein, low salt diet. He was given many diuretics including theobromine, caffeine, ammonium nitrate and salyrgan with no effect. He was also given from 1 to 3 grains (0.06 to 0.2 Gm.) of thyroid extract daily for a prolonged period. The edema increased as shown by a rise in weight from 63 pounds (28.6 Kg.) on admission to 76 pounds (34.5 Kg.) on November 27, the day the first dose of acacia was given. At

From the Baylor University and Parkland hospitals.  
1. Shelburne S. A. and Egloff W. C. Experimental Edema. Arch. Int. Med. 45: 51-69 (July) 1931.

2. Hartmann A. F., Senn M. J. E., Nelson M. V. and Perley A. W. The Use of Acacia in the Treatment of Edema. J. A. M. A. 100: 251 (Jan. 28) 1933.

3. Dick M. W., Warweg Edna, and Andersch Marie. Acacia in Treatment of Nephrosis. J. A. M. A. 105: 654 (Aug. 31) 1935.

4. McCann W. S. Bright's Disease. A Review of Recent Literature. Arch. Int. Med. 57: 630 (March) 1936.

5. After the manuscript of this paper had been submitted several papers of great importance appeared. Both M. J. Lepore (Acacia Therapy in Nephrotic Edema. Ann. Int. Med. 16: 285 [Aug.] 1937) and E. M. Landis (Observations on Acacia Therapy in Nephrosis. J. A. M. A. 109: 2030 [Dec. 18] 1937) point out the great efficacy of acacia in removing this type of edema and the harmlessness of the product. Neither of these studies stressed the principal thesis of my paper, i. e., the temporary use of acacia for diuresis and the dependence on high protein diet for permanent effects. Landis (per oral communication) reports one failure in a recent case, which he is unable to explain. Hecker (Blood Plasma Proteins as Influenced by Intravenous Injections of Gum Acacia. J. Exper. Med. 67: 345 [March] 1938) shows beyond doubt the ill effect of the continued use of acacia. The continuous use of acacia should be avoided even if edema returns.

this time the patient's condition was regarded as a hopeless problem and he was referred from the pediatric department to my service, with little hope that anything of value could be done. I felt that the trial of acaia provided a discouraging outlook, as the reports at that time were none too optimistic. The patient had had several abdominal paracenteses, and the fluid reaccumulated rapidly. He had had three large blood transfusions without the slightest effect on the urinary output. It might be worth while at this point to add that I have never had any beneficial results from blood transfusions.

The patient was given 100 cc of acaia solution (30 Gm, Lilly) in 200 cc of water on November 27, with no change in weight the following day. This dose was repeated on November 29. The next day his weight was 69 pounds (31 Kg), and three days later, when he was given another similar dose, it was down to 65 pounds (29.5 Kg). It had fallen to 57 pounds (26 Kg) on December 6. When a fourth dose was administered on December 9, the patient weighed 52½ pounds (24 Kg) and had no trace of edema. There was a total loss of weight of 24 pounds (11 Kg) within thirteen days, representing 31 per cent of the total body weight.

CASE 2—J. W. H., an adult man, who was referred to me by Dr. H. A. O'Brien of Dallas, Texas, on Feb. 12, 1936, complained of extreme swelling of the legs and abdomen, great exhaustion and loss of flesh. The loss of flesh was most noticeable in the upper extremities, doubtless because of the edema elsewhere. He stated that he had been well until June 1935, when he began to have exhaustion, which increased until the edema appeared in July. An examination of the urine at this time showed a 4 plus reaction for albumin and a few red blood cells and casts. A diagnosis of chronic nephritis was made, and the patient was treated with rest, a low protein diet and extraction of his teeth. He did not improve with this program, and he was admitted to a hospital in Temple, Texas, in November 1935. It was found that he was excreting from 8 to 15 Gm of albumin per day. The serum protein content was 5.4 Gm per hundred cubic centimeters, and the urine was normal except for albumin and an occasional red blood cell. The blood urea content was 25 mg per hundred cubic centimeters. The phenolsulfonphthalein excretion was 53 per cent, the electrocardiogram was normal, the basal metabolic rate was minus 19 and the Wassermann and Kahn reactions were negative.

TABLE 1—Progress in Case 1

Date	Weight, Pounds	Edema	Plasma Protein, Gm *	Blood Urea Nitrogen, Mg	Blood Cholesterol, Mg	Hemoglobin Percentage	Urine Protein, Gm	Acaia, Gm	Comment
8/14/35	68	+++	5.0	16	270	70	10	0	Comaant
9/7/35	70	++++	4.9	14		70	12	0	
11/27/35	76	++++	5.0	15		70	+++	30	
11/29/35	74	++++						30	
11/30/35	69	+++						30	
12/3/35	65	++						30	
12/6/35	57	+							
12/9/35	52	0						30	Lost 24 pounds
12/11/35	51		5.0	12		70	+++	0	Total acaia, 170 Gm
3/11/36	56	+	4.9	11	100	70	++	0	No edema
3/19/37	58	0	7.6	12	110	80	+	0	Pus in urine

\* Albumin globulin ratios were determined in each instance but are not reported here.

TABLE 2—Progress in Case 2

Date	Weight, Pounds	Edema	Plasma Protein, Gm *	Blood Urea Nitrogen, Mg	Blood Cholesterol, Mg	Hemoglobin Percentage	Urine Protein, Gm	Acaia, Gm	Comment
11/12/35	186	++++	5.5	12		82	12.0	0	Temple, Texas
2/14/36	187	++++	5.5	11	167	95	6.3	30	
2/16/36		++						60	
2/18/36	181							60	Total acaia 210 Gm
2/20/36	180							60	
3/10/36	171							0	
3/13/36	171	0						0	No symptoms Phenolsulfonphthalein excretion normal no symptoms
12/29/36	174	0	7.0	9		90	8.0	0	
7/20/37	174	0	6.4	12		90	8.0	0	

The patient remained well going to school and playing actively, until Feb. 15, 1936, when ascites began to return. He was admitted to the hospital on March 2 for observation. At that time his weight was 56 pounds (25.4 Kg). Examination gave negative results except that it showed a small amount of fluid in the abdomen. The laboratory studies showed nothing abnormal except albumin in the urine, mild secondary anemia and a low plasma protein content. The cholesterol content at this time was 100 mg. The patient was given a high protein diet and the ascites promptly disappeared. This recurrence was doubtless due to failure of the parents to supply him with the high protein diet.

After the patient's discharge in March 1936 we had great difficulty in observing him, as he was so well the family refused to bring him in. Finally, a year later, on March 19, 1937, he came into the clinic. The urine at that time had a specific gravity of 1.025, a 1 plus reaction for albumin and a 3 plus reaction for white blood cells. We could not determine the origin of the pus in the urine, but a later examination gave negative results throughout. The blood count was normal, the plasma protein content 7.6 Gm, the albumin content 4.3 Gm and the globulin content 3.3 Gm.

Röntgenograms of the gastro-intestinal tract and of the kidney, ureter and bladder showed nothing abnormal. Examination of the nose and throat showed a heavy secretion in the nose, a deflected septum and infected tonsils.

The patient was advised to eat a normal diet, but no other direct treatment was suggested. He continued to have extreme edema and exhaustion and was unable to go about his regular duties. He was under the care of a local physician during this period. This physician gave him a number of injections of salyrgan, which provided temporary diuresis, with rapid return of the edema. He was also treated with thyroid and received one transfusion, with little or no effect.

My examination showed that the patient was well developed, with a large frame. Muscular atrophy was present, which could be seen best in the shoulder girdle, as there was extensive edema of the legs and marked ascites. Some edema was present in the eyelids. The remainder of the examination showed nothing abnormal except a tender prostate, fluid from which showed some pus. A laboratory examination was performed in the hospital, and the results are reported in table 2. The outstanding observations were a low plasma protein content, a normal cholesterol content, a large daily output of albumin in

the urine and a normal urea nitrogen content and excretion of phenolsulfonphthalein. The diagnosis was chronic nephritis with the nephrotic syndrome.

The patient was immediately placed on a high protein diet and given a large beefsteak every night. He has remained on this diet since that time. He was given 100 cc of a 30 per cent acacia solution in 400 cc of water on February 14. Two days later he received 200 cc of the same solution, and on the eighteenth he had lost 6 pounds (2.7 Kg), his weight having dropped from 187 to 181 pounds (85 to 82 Kg). He received 200 cc of acacia solution on February 20 and a similar amount on March 10. On March 13 he weighed 171 pounds (77.6 Kg), a total loss of 16 pounds (7.3 Kg), having taken place. It is interesting to note that the loss of weight was gradual during this month of treatment. The patient's condition was greatly improved, he was able to return to work, and he has since been working constantly, living on a regimen no different from that of the average person, except that he eats a large thick steak every night and high protein foods at the other meals. It is interesting to note that he has shown a definite and persistent increase in the plasma protein content, as shown in the table, since he has been on the high protein diet.

CASE 3—E. V., a white man, aged 20, had been perfectly well until January 1936, when, without any prodromal symptoms, a gradually increasing swelling of his entire body, including the face, developed. He then began to have moderate shortness of breath. This symptom was not present before

he was given an additional 200 cc of acacia and had a severe reaction, with chill and vascular collapse, but recovered within six hours. This was the first and only reaction of any severity which we observed, and it was due to negligence.

The patient was sent home on August 3 but failed to follow his high protein diet closely and had to receive 150 Gm of acacia from his local physician. He has since been careful to eat the large steaks, and the administration of acacia has not had to be repeated. I made a complete examination of him on March 17, 1937, and found no edema, but he was excreting large quantities of albumin daily (maximum, 12 Gm). However, the serum protein content had increased from 3.1 Gm to 5.6 Gm per hundred cubic centimeters. The urea nitrogen content was 18 mg and the phenolsulfonphthalein excretion 89 per cent. The urine contained few red cells and no casts. The patient was feeling fine and had been working hard for the past year. He was reexamined on Sept. 14, 1937, and appeared perfectly well. His muscles had developed magnificently, but he was still excreting large amounts of albumin. The serum protein content was 3.7 Gm. He was working full time and felt well.

#### COMMENT

One might properly ask why acacia should be used in the treatment of the nephrotic syndrome if the lasting benefits are derived wholly from the use of a high protein diet. In the first place, the high protein diet alone will rarely raise the level of plasma proteins fast

TABLE 3—Progress in Case 3

Date	Weight Pounds	Edema	Plasma Protein Gm %	Blood Urea Nitrogen Mg	Blood Cholesterol Mg	Hemoglobin, Percentage	Urine Protein, Gm	Acacia Gm	Comment
7/16/36	150	++++	4.1	1	167	80	10	60	
7/19/36	140	+++						60	
7/23/36	140	+						60	
7/25/36	136	0						30	
7/29/36	136	0	4.0	15	150	80	12	60	Lost 14 pounds Total acacia 270 Gm lost 60 Gm by error
10/27/36	131	0	3.1	12	160	81	12	0	
3/17/37	140	0	5.6	1	194		12	0	
9/14/37	141	0	7.7	14	190	77	12	0	Muscular development excellent

the onset of the edema and was not marked thereafter. He remained in bed for one month and the edema disappeared, but it recurred when he got up and about again. He was studied in a hospital in Temple, Texas, and a diagnosis of chronic nephritis was made. He was placed on a low salt and low protein diet, with no benefit. The swelling persisted until I saw him on July 15, 1936, but he had no other symptoms except weakness and cramping of his arms and legs. He was unable to work because of the weakness and the edema.

At examination he looked healthy and well nourished but had marked edema below the knees. The retina was entirely normal, the throat was particularly clean, the teeth were normal, the lungs were clear, the heart was not enlarged and the sounds were normal. The blood pressure was 138 systolic, 82 diastolic. There was some ascites. The examination otherwise gave negative results. The results of laboratory study are shown in table 3. The outstanding observations were the extremely low serum protein content, 3.1 Gm per hundred cubic centimeters, normal nitrogen and cholesterol levels and a large amount of albumin in the urine, with very few red cells and no casts. The diagnosis was chronic nephritis with the nephrotic syndrome.

The patient was placed on the usual high protein diet and given a large steak each night. An interesting point in this case is the fact that he did not follow directions at first in regard to the size of his steak and had to have the administration of acacia repeated after the preliminary period. However, since that time he has followed directions closely and has had no recurrence of edema. He was given 200 cc of 30 per cent acacia solution July 17, and this dose was repeated on July 19, and again on July 23. He was also given 100 cc on July 25. On July 29 he had lost all his edema, his weight having gone down from 150 to 136 pounds (68 to 62 Kg). By an error,

enough to eliminate the edema. This is doubtless because the patients have to take the diet over a long period and are discouraged before results can be attained. By using acacia one can in every case eliminate the edema within a few days. The patient is greatly encouraged by this dramatic effect, his confidence is restored and his psychologic improvement is enormous. He is not so obviously a sick man and is able to resume contact with the public. The relief from the edema increases his comfort, as he has suffered with a tight feeling in his abdomen and his feet and usually has had dyspnea. The removal of the fluid completely eliminates the danger of peritonitis, which is such a dreaded complication. The tissue nutrition should be improved by the elimination of the edema fluid.

The limitations of the use of acacia are too many to mention here, though it is important to note that its use is not worth while when the edema associated with chronic nephritis is due to cardiac failure or to capillary damage. It is not useful in the treatment of starvation edema, as this type of edema can quickly be corrected by the eating of protein food. It should not be used in the management of acute forms of nephritis, as the associated edema is practically always due to damaged capillaries and not to a low plasma protein content. Furthermore, the tendency to cure in such cases is so great that acacia therapy is not necessary. Its usefulness in the treatment of infants is problematic. Doubtless it will relieve edema due to a low plasma

protein content, but, since the infant cannot be given a sufficiently high protein diet, the benefits are not lasting

## SUMMARY

The advantage of acacia therapy in the management of chronic nephritis with the nephrotic syndrome was demonstrated in three cases. An important point is that the acacia was used only as a temporary measure for the elimination of edema in the very beginning and that the principal therapeutic measure is the use of a diet high in animal protein.

Medical Arts Building

## THE RATIONALE OF SULFANILAMIDE IN GONOCOCCIC URETHRITIS

JAMES I. FARRELL, M.D., PH.D.

EVANSTON, ILL.

YALE LYMAN, M.B.

AND

G. P. LOUMAN, PH.D.

CHICAGO

No therapeutic agent used in the treatment of gonorrhea has caused as much comment as sulfanilamide. One may read of its use in lay and medical periodicals. As yet, no experimental work has been advanced to explain its action in urethral infections. The experiments reported here were conducted in our laboratory to find out how the drug acts on genito-urinary infections.

Reuter<sup>1</sup> reports 100 cases of gonorrhea in which treatment with sulfanilamide was given by mouth. There were approximately sixty cases of chronic infection and forty of acute anterior urethritis. About 90 per cent of these cases were reported as cured, none of them showed any complications. Dees and Colston<sup>2</sup> report nineteen cases of gonorrhea in various stages in which treatment was with sulfanilamide. They report about 90 per cent of their patients cured. Likewise, no complications were noted, and the following comment is made: "It has been especially impressive to us that the infection in none of our treated cases has progressed from anterior to posterior urethritis or from anterior urethritis to prostatitis or epididymitis after the institution of the treatment."

One of us (Farrell) has treated ten cases of gonorrheal urethritis with sulfanilamide by mouth. Only five of the patients responded to treatment. The other five seemed to derive little benefit from the drug, as evidenced by persistent discharge, so that local treatment was begun. None of the ten patients had any complications such as posterior urethritis, prostatitis or epididymitis. Because of the repeated observations by the various observers that no complications occur, it seemed advisable to us to determine a rational basis for the use of sulfanilamide in gonorrhea. Marshall<sup>3</sup> has shown that sulfanilamide is rapidly absorbed from the gastro-intestinal tract and enters practically all fluids of the body and that it is excreted almost entirely

through the kidneys, from 70 to 93 per cent being excreted in twenty-four hours. Marshall also reports that it usually takes from two to three days to establish an equilibrium between intake and output. In the dog the normal excretion occurs about four hours after the ingestion of the drug. He found that from 11 to 16 mg. of sulfanilamide is present in 100 cc. of blood in the treated dog.

Buttle, Colebrook and O'Meara<sup>4</sup> have shown that sulfanilamide is active in vivo in from 1,000 to 13,000 parts in the blood against streptococci. Control specimens of blood showed an increased growth of streptococci.

Helmholz<sup>5</sup> has shown that the urine of patients taking sulfanilamide by mouth is strongly bactericidal against the organisms usually found in infections of the urinary tract. The drug appeared to be more active in alkaline urine.

## EXPERIMENTAL DATA

Large male dogs were used in our experiments. The dogs were given sulfanilamide by mouth for several days, the daily dose being approximately 0.18 Gm. per kilogram. The dogs were anesthetized with pentobarbital sodium given intravenously. In order to collect the secretion from the posterior urethra, the urethra was tied off at the bladder opening and a cannula placed in the portion just distal to the prostate gland. Thus we were able to collect the prostatic secretion and also the secretion of the glands of the posterior urethra uncontaminated with urine or blood. In addition, samples of blood and urine were collected from each dog. The content of sulfanilamide in these specimens was determined by the method described by Marshall. The results are given in table 1.

TABLE 1—Content of Sulfanilamide in Blood, Prostatic Secretion and Urine

Dog	Dosage of Sulfanilamide	Mg. of Sulfanilamide in 100 Cc.		
		Blood	Prostatic Secretion	Urine
1	10 grains 3 times a day	7.6	3.8	3.2
2	10 grains 3 times a day	3.7	3.4	2.1
3	10 grains 4 times a day	16.0	13.2	11.3
4	10 grains 4 times a day	17.3	15.1	14.0

TABLE 2—Effect of Prostatic Secretion on Staphylococci and Colon Bacilli

		Colon Bacilli			Staphylococci			
		0 Hrs.	4 Hrs.	24 Hrs.	0 Hrs.	2 Hrs.	4 Hrs.	24 Hrs.
Dog 1 normal prostatic secretion	In	72	96	0	In	In	10	40
Dog 2 after sulfanilamide	In	104	0	0	In	In	64	28
Dog 2 normal prostatic secretion	In	In	96	0	In	In	80	0
Dog 1 after sulfanilamide	In	42	108	0	In	In	160	8

In means innumerable

The first two dogs were operated on several hours after their last dose of sulfanilamide was given. Dogs 3 and 4 were operated on between the third and fourth hour after their last dose of sulfanilamide. The concentration of the sulfanilamide in the secretion obtained from the prostatic urethra is slightly greater than the concentration in the urine.

<sup>4</sup> Colebrook, Leonard, Buttle, G. A. H. and O'Meara, R. A. Q. Mode of Action of Sulfanilamide. *Lancet* 2: 1323 (Dec. 5) 1936.  
<sup>5</sup> Helmholz, H. F. Bactericidal Power of Urine After Administration of Proflavin by Mouth. *Proc. Staff Meet. Mayo Clin.* 12: 24-25 (April 21) 1937.

From the Departments of Urology and Bacteriology, Northwestern University Medical School.

<sup>1</sup> Reuter, F. A. Use of Sulfanilamide in 100 Cases of Gonorrhea. *M. Ann. District of Columbia* 6: 117 (May) 1937.

<sup>2</sup> Dees, J. E. and Colston, J. A. C. Sulfanilamide in Gonococcal Infections. *J. A. M. A.* 108: 1855-1858 (May 29) 1937.

<sup>3</sup> Marshall, E. K. Jr. Emerson, Kendall, Jr. and Cutting, W. C. Sulfanilamide: Absorption and Excretion. *J. A. M. A.* 108: 923-927 (March 20) 1937.



After recovering the drug in the urine and prostatic secretion in such concentrations, we sent the specimens to the bacteriology laboratory, where they were tested against the strains of staphylococci and colon bacilli. Gonococci were not used because of their extreme susceptibility to change in various mediums and temperatures, it being thought best to try the bactericidal action against the more common organisms.

Table 2 shows the effect of prostatic secretion both from normal dogs and from dogs given sulfanilamide, on staphylococci and on colon bacilli.

TABLE 3—Germicidal Activity of Sulfanilamide on Prostatic Fluid

Sample	Organisms	Number of Colonies Time of Plating in			
		0	2 Hrs	4 Hr	24 Hrs
1 Normal	Coli	In	In	6~	0
Sulfanilamide	Coli	In	In	22	0
H O	Coli	In	In	In	In
2 Normal	Coli	In	240	705	45
Sulfanilamide	Coli	In	70	10	0
H O	Coli	In	In	In	In
Normal	Staph aureus	In	In	In	75
Sulfanilamide	Staph aureus	In	In	In	0
H O	Staph aureus	In	In	In	In

In order to determine whether the drug was effective when given intravenously and at the same time have a control prostatic secretion from the same dog two animals were anesthetized and the prostatic secretion was collected. One and five-tenths grams of sulfanilamide dissolved in 200 cc of physiologic solution of sodium chloride was given intravenously, the prostatic secretion was then collected for a period of two hours. The results are recorded in table 3.

#### METHODS

The prostatic fluid was tubed aseptically in 1 cc amounts in sterile Wassermann tubes. The tubes together with a control tube of sterile distilled water were inoculated with one standard 4 mm loopful of a twenty-four hour meat infusion broth culture of either *Staphylococcus aureus* or *B. coli*. The tubes were then placed in the incubator at 37 C and agar plate subcultures made immediately, at two four and twenty-four hour intervals by transferring one standard loopful to a tube of melted and partially cooled meat infusion agar. The plates were incubated at 37 C for forty-eight hours and examined to determine the number of colonies present. Actual counts were made when possible, otherwise the number of colonies was recorded as innumerable, innumerable plus or innumerable minus, or compared with the control.

#### RESULTS

The prostatic fluid of two dogs which had received sulfanilamide intravenously after a sample of normal prostatic fluid had been obtained was tested for germicidal activity. Both samples were tested with *B. coli* and only one with *Staphylococcus aureus*, as shown in table 3.

The sulfanilamide is excreted in bactericidal concentrations, in both the urine and the secretion of the posterior urethra, when adequate doses are given. According to our experiments from 10 to 15 mg of sulfanilamide seems to be adequate antiseptic concentration. The experiments demonstrate that the bactericidal power of prostatic secretion on colon bacilli and *Staphylococcus aureus* is marked. In twenty-four hours

all the bacteria were reduced in number. In dogs given sulfanilamide in approximately human doses, there were no viable bacteria on the plate at the end of twenty-four hours.

#### COMMENT

The foregoing experiments give one a logical explanation of the action of sulfanilamide in the genito-urinary tract. When the kidney is normal the drug is excreted in concentrations that are bactericidal. This means that the lower genito-urinary tract is continually in contact with a strongly bactericidal urine. The secretions of the posterior urethra, notably the secretion of the prostate gland, have a similar effect. The drug content in this secretion prevents the spread of gonococci into the posterior urethra. It is a well recognized clinical fact that a posterior urethritis is the forerunner of the serious complications of gonorrhea such as prostatitis, epididymitis and arthritis. The infection of the posterior urethra is effectually prevented by the excretion of sulfanilamide in the prostatic secretion and this effectually confines the urethritis to the anterior urethra.

#### SUMMARY

Sulfanilamide, when given in adequate amounts is secreted in the urine and prostatic secretion in bactericidal concentration. When the drug was given in smaller amounts it did not appear to be as effective as when administered in larger amounts.

The drug appears to act directly on the infecting organisms in the urinary tract.

636 Church Street

### THE SUCTION TEST FOR CAPILLARY RESISTANCE IN THROMBOCYTOPENIC PURPURA

R. H. EGERTON ELLIOTT, M.D.

NEW YORK

It has long been recognized that a state of lowered capillary resistance exists in patients with thrombocytopenic purpura. It has furthermore been recognized that the degree of lessened resistance is in general proportional to the severity of the disease process. Therefore a determination of the state of resistance of the capillaries is generally included among the measures employed to ascertain the presence and the activity of the disease. The three principal methods which have been used in this determination are (1) the tourniquet test, (2) the intradermal venom test and (3) the suction test.

The tourniquet test was introduced as a method of measuring capillary resistance in 1911 by Weill, Rumpel, Leed and others. Despite the recent introduction of qualitative<sup>1</sup> and quantitative<sup>2</sup> modifications this type of determination leaves much to be desired, as it is both cumbersome and time consuming. Furthermore, it is poorly adapted to measuring the degree and the rapidity of the fluctuations in capillary resistance which may occur in patients with purpura.

From the Department of Surgery, Columbia University College of Physicians and Surgeons and the Spleen Clinic of the Presbyterian Hospital.

<sup>1</sup> Jones H. W. and Tocantins L. M. A Simple Test for Capillary Resistance. The Flicking Test. *Am J. N. Sc.* 185: 535 (April) 1933.

<sup>2</sup> Gothlin C. F. A Method of Establishing the Vitamin C Standard and Requirements of Physically Healthy Individuals by Testing the Strength of Their Cutaneous Capillaries. *Skandinav. Arch. f. Physiol.* 61: 225 (May) 1931.

The intradermal venom test was first described by Peck<sup>3</sup> in 1936. I have had little experience with it, but it would seem likewise to have the disadvantage of being of little assistance in following the daily course of the severity of the disease as reflected by the resistance of the capillaries.

The suction method of measuring capillary resistance is by no means new. First described by Hecht in 1907

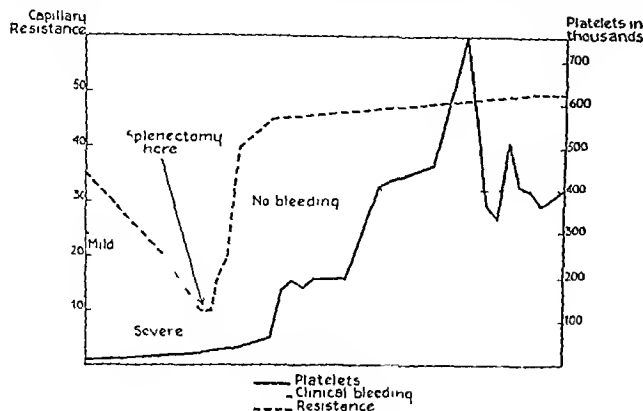


Chart 1—Clinical course in a case of idiopathic thrombocytopenic purpura haemorrhagica in which the spleen was removed twelve days after admission because of failure of conservative therapeutic measures. In the charts the solid line indicates platelets, the broken line capillary resistance and the dotted line bleeding.

and only recently popularized by da Silva Mello abroad and Dalldorf in this country, it has been used principally in cases of scurvy. Strangely enough, though there are abundant references in the recent literature to its use in the treatment of that condition and though it is undoubtedly being widely used in cases of the hemorrhagic diatheses, we were able to find only four brief accounts of its use in the treatment of purpura. Bruhl<sup>4</sup> described its use in a case of idiopathic thrombocytopenic purpura but said little about the method itself. Brock and Marcus,<sup>5</sup> in discussing its use in the treatment of various hemorrhagic conditions, cited Bruhl's case and briefly mentioned one of their own in which it was used. Falconer, Epstein and Weaver<sup>6</sup> mentioned its use in two cases of purpura following nearsphenamine therapy, and Peck, Rosenthal and Erf<sup>7</sup> in their recent article on purpura described the histopathology of the petechiae produced in patients with that condition by its use.

Of the three aforementioned methods of determining capillary resistance, the suction test has appealed to my co-workers and me as the most desirable by virtue of its simplicity, relative accuracy and rapidity of operation. Of even more importance is the fact that it seems to be the best available method for measuring the daily or hourly fluctuations in resistance so often encountered in patients with thrombocytopenic purpura. During the past two years therefore its use on all patients with purpura treated in the Spleen Clinic of the Presbyterian Hospital has become a matter of routine.

3. Peck S. M., Rosenthal Nathan and Erf L. A. The Value of the Prognostic Venom Reaction in Thrombocytopenic Purpura. *J. A. M. A.* 106: 1783 (May 23) 1936.
4. Bruhl H. Beiträge zum Kinderheilstilb und zur Behandlung des Morbus maculosus Werlhofii. *Zt. chr. f. Kinderh.* 54: 159, 1903.
5. Brock Joachim and Marcus Anneliese. Ueber die Capillarresistenz im Kindesalter. *Ztschr. f. Kinderh.* 56: 239, 1934.
6. Falconer E. H., Epstein, N. N. and Weaver G. K. Purpura Haemorrhagica Following the Administration of Nearsphenamine. *Arch. Int. Med.* 58: 495 (Sept.) 1936.
7. Peck S. M., Rosenthal Nathan and Erf Lowell. Purpura Classification and Treatment with Special Reference to Treatment with Snake Venom. *Arch. Dermat. & Syph.* 35: 831 (May) 1937.

Using the Dalldorf modification of the da Silva Mello instrument,<sup>8</sup> our procedure has been to apply suction to the forearm about 2 cm. distal to the antecubital fossa. A given negative pressure is maintained for one minute and a reading taken. The lowest negative pressure giving a positive reaction is considered to be the capillary resistance. For a reading to be positive a minimum of two petechiae must be clearly discernible.

The method, as has been pointed out by Dalldorf and others, is by no means absolutely accurate, for too many variables, such as thickness, texture and color of the skin and varying intensities of light, are present. For this reason we do not attempt to measure resistance values below minus 10 cm. of mercury or above minus 50. We do feel, however, that the test gives a reasonably accurate estimate of the state and change of capillary resistance when performed on a given area of skin and, when possible, by a single observer.

#### NORMAL VALUES

In general our "normal" values for capillary resistance measured just below the antecubital fossa with the Dalldorf apparatus agree closely with those of other observers. The majority of healthy adults whom we have tested have given values falling within the range of from minus 20 to minus 35 cm. of mercury. In the presence of suspected or proved ill health values below minus 20 have been considered abnormal.

#### CLINICAL MATERIAL

As has been stated previously, determinations of the capillary resistance are performed as a matter of routine at each visit of all patients with purpura who attend the Spleen Clinic of the Presbyterian Hospital. In all, some thirty-five persons with purpura, not to mention numerous persons with various other types of blood dyscrasias, are being so observed.

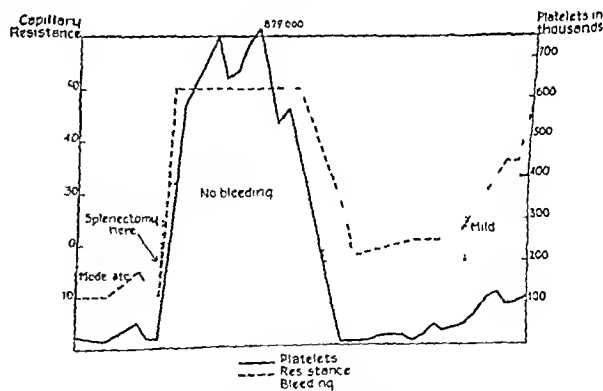


Chart 2—Clinical course in a case of idiopathic thrombocytopenic purpura haemorrhagica in which splenectomy was performed three weeks after admission because a conservative regimen did not give improvement.

It has been our experience that in each case the values for capillary resistance tend to parallel closely the bleeding tendency, low values being present in the active phases of the disease and higher, or normal values in the inactive phases. Furthermore, we have found this to be true irrespective of the level of the platelet count. In other words, when, as occasionally happens, the bleeding tendency is active in the presence

8. Dalldorf Gilbert. A Sensitive Test for Subclinical Scurvy. *N. Y. J. Med.* 46: 794 (Oct.) 1933.

of a normal platelet count or when the tendency is inactive in the presence of thrombocytopenia, the resistance values tend to parallel the former rather than the latter

In addition, after splenectomy the capillary resistance may be the first measurable entity to be quantitatively affected (chart 1). In seven recent cases of so-called idiopathic thrombocytopenic purpura in which splenectomy was performed, the resistance values rose from 5 to 40 cm of mercury within the first twenty-four hours after operation (charts 1 and 2). In one case the resistance rose from a preoperative level of minus 10 to minus 20 after the spleen had been removed but before closure of the abdominal wound had been completed. From the first two charts it will be seen further that immediately after splenectomy and at the time resistance rose all clinical bleeding ceased. It is also

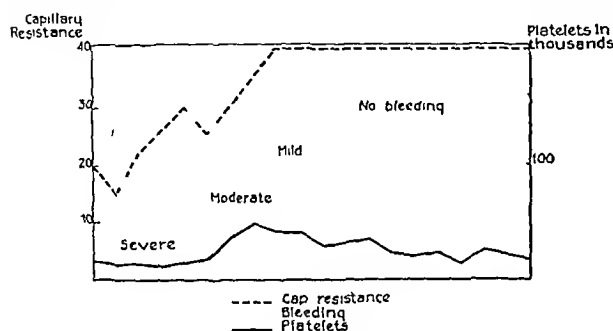


Chart 3—Clinical course in a case of thrombocytopenic purpura following the administration of pneumococcus antiserum for type I lobar pneumonia. The onset of purpura took place eight days after the first injection of antiserum. Complete cessation of bleeding manifestations occurred nine days later and the patient was discharged in good health nineteen days after the onset of hemorrhagic symptoms.

of interest that the elevation of the platelet count following operation may lag behind the rise in resistance (chart 1).

Chart 3 depicts the parallelism between the clinical bleeding and the capillary resistance in a person with symptomatic purpura and, in addition, clearly shows the discrepancy which may exist between the platelet level on the one hand and the bleeding tendency and the capillary resistance on the other.

#### SUMMARY AND CONCLUSIONS

The suction method of measuring capillary resistance is a simple, relatively accurate means of following the frequent fluctuations in the permeability of the capillaries in patients with thrombocytopenic purpura.

The capillary resistance in thrombocytopenic purpura tends to parallel the bleeding tendency rather than the platelet level.

The suction method of measuring capillary resistance is a useful means of estimating the activity of the disease process in patients with thrombocytopenic purpura and may, in certain instances, be of more value in this connection than the platelet count.

In seven cases of idiopathic thrombocytopenic purpura, the capillary resistance rose abruptly during the first twenty-four hours after removal of the spleen and in one instance doubled the preoperative level before closure of the abdominal wound had been completed.

After splenectomy for idiopathic thrombocytopenic purpura, the capillary resistance may be the first measurable entity to be materially affected, the rise in resistance preceding that of the platelets.

630 West One Hundred and Sixty-Eighth Street

## THE INTERPRETATION OF EXCESSIVE GONADOTROPIC HORMONES

EXCRETED IN THE URINE IN EARLY PREGNANCY

A. J. KOBAK, M.D.

CHICAGO

It has been demonstrated that large quantities of gonadotropic hormones are excreted into the urine when chorionepithelioma or hydatidiform mole is present. It has been shown that up to 50 per cent of the chorionepitheliomas studied have been preceded by hydatidiform moles. It would be advantageous therefore if a diagnosis could be made early by testing the urine for these hormones. It has been contended that if a diagnosis was made before full clinical signs developed, complete eradication of the tumor could be carried out before metastasis occurred. The reports of Leventhal and Saphir,<sup>1</sup> Mathieu and Palmer,<sup>2</sup> Kimbrough<sup>3</sup> and Garber and Young<sup>4</sup> have shown this.

#### REPORT OF CASE

C. E. S., a white woman, aged 32, a primipara, secundigravida, last menstruated Dec. 30, 1934. Her first pregnancy was terminated by a low forceps delivery after a slight hemorrhage, which was due to a marginal placenta praevia. The second pregnancy was uneventful until June 30, 1935, or about the twenty-sixth week, when it was noted that she was losing weight and had never felt any fetal movements. Examination showed absence of the fetal heart tones, and as the height of the uterus corresponded to that of a twenty weeks pregnancy a diagnosis of missed abortion was made. On July 8 the patient had a profuse hemorrhage, and in a few hours she expelled a hydatidiform mole. Examination disclosed three small fibroid nodules on the posterior wall of the uterus. The uterine cavity was curetted, and the patient made an uneventful recovery and left the hospital in four days. August 7 a Friedman test was negative.

The patient was again seen September 14, at which time the uterus was soft and enlarged, corresponding to the size of a six weeks pregnancy. The patient stated that she had cohabited but once. A condom was used for contraception at that time, which was six weeks prior to this examination and less than one month after the curettage. The Friedman test was now found to be positive. The patient was seen one week later, September 21, and reported that she had had a profuse painless vaginal hemorrhage which had lasted for two hours before stopping spontaneously. The size of the uterus at this time was found to correspond to that of an eight to ten weeks pregnancy. A quantitative determination of the gonadotropic hormones in the urine was made by a slight modification of the original Aschheim-Zondek method (technic described by Leventhal and Saphir<sup>1</sup>). The tests showed that a minimal concentration of the hormone content was estimated to be 150,000 mouse units per liter. In reporting this test Dr. William Saphir stated that there was a great likelihood of the presence of a chorionepithelioma.

The diagnosis was obscured by the contraceptive precaution. Furthermore, the possibility of a pregnancy occurring within four weeks from the date of the curettage was unlikely. With the uterus growing rapidly for one week the hemorrhage and the hormone observations, the diagnosis of uterine pregnancy became even more dubious. September 28 the patient was admitted to the Michael Reese Hospital where the uterus was emptied by an abdominal hysterotomy. It contained a normal fetus and placenta about 10 weeks of age. The left

From the Department of Obstetrics and Gynecology, Michael Reese Hospital.

<sup>1</sup> Leventhal M. L. and Saphir William. Chorionepithelioma. *J. A. M. A.* 103: 668 (Sept. 1) 1934.

<sup>2</sup> Mathieu Albert and Palmer Allen. *Surg. Gynec. & Obst.* 61: 336 (Sept.) 1935.

<sup>3</sup> Kimbrough R. A. Jr. *Am. J. Obst. & Gynec.* 28: 12 (July) 1935.

<sup>4</sup> Garber Moses and Young A. M. *Am. J. Obst. & Gynec.* 72: 321 (Aug.) 1936.

ovary contained a normal corpus luteum of pregnancy. The fibroids were removed and the patient made an uneventful recovery. Microscopic examination of the placenta showed nothing abnormal. Two subsequent Friedman tests were negative.

## COMMENT

This case demonstrates the difficulty in diagnosis when, after the expulsion of a hydatid mole an unexpected pregnancy intervenes. According to Zondek<sup>5</sup> "Production of gonadotropic principle is greatest at the beginning and in the early months of pregnancy, it diminishes in the latter months (Aschheim and Bernhard Zondek). In early pregnancy the content of this substance amounts to an average of 10,000 mouse units per liter of blood and from 5,000 to 30,000 mouse units per liter of morning urine."

Evans and his associates<sup>6</sup> have recently demonstrated that in the early months of pregnancy the anterior pituitary-like hormones in the urine may reach a high peak. This peak, which is regarded as a normal phenomenon appeared invariably one month from the beginning of the first expected but missed menstruation. Its level may equal that found in hydatidiform moles and chorionepithelioma. With hyperemesis gravidarum<sup>7</sup> and with toxemias of late pregnancy<sup>8</sup> there is likewise an abnormally large quantity of these substances in the urine.

Reeb, Nerson and Klein<sup>9</sup> reported two cases in which they were erroneously led to believe that they were dealing with hydatidiform moles because of repeated hemorrhages together with a high level of gonadotropic hormones in the urine. When more negative reports, such as this are made, the diagnostic value of large quantities of gonadotropic hormones in the urine will be more limited.

Cases have been reported in which the hormone content was either negative or present in ordinary quantities, although hydatidiform mole or chorionepithelioma was present in the uterus (Fluhmann,<sup>10</sup> and Cion in discussing Gough's paper<sup>11</sup>). Laboratory test of the hormone content should therefore be interpreted cautiously before a diagnosis is made. The clinical history and physical appearances should be given primary consideration before one concludes that chorionepithelioma or hydatidiform mole is present.

## CONCLUSION

The presence of urinary gonadotropic hormones in high concentrations necessitates the definite exclusion of a normal pregnancy before the diagnosis of hydatidiform mole or chorionepithelioma is considered.

185 North Wabash Avenue

5 Zondek, Bernhard. Gonadotropic Hormone in the Diagnosis of Chorionepithelioma. *J A M A* 108: 607 (Feb 20) 1937.

6 Evans, H. M., Kohls, Clara L. and Wonder, D. H. Gonadotropic Hormone in the Blood and Urine of Early Pregnancy. *J A M A* 108: 287 (Jan 23) 1937.

7 Schoenbeck, F. J. *Am J Obst & Gynec* 32: 104 (Jul) 1936.

8 Smith, G. van S. and Smith, Q. W. *Proc Soc Exper Biol & Med* 30: 918 (April) 1933.

9 Reeb, Nerson and Klein. *Gynec et obst* 30: 305 (Oct) 1934.

10 Fluhmann, C. F. *Am J Obst & Gynec* 33: 931 (June) 1937.

11 Gough, J. A. *Am J Obst & Gynec* 34: 267 (Aug) 1937.

**Conclusive Clinical Proof**—Admittedly conclusive clinical evidence is hard to come by, since controls are seldom possible, but we are too apt to accept such evidence as is pleasing to our prejudices. That is the basis common to both these prevalent weaknesses—obstinate conservatism on the one hand, credulity on the other. If a new idea can be fitted into the authoritarian framework we are too apt to accept it uncritically, whereas if it breaks new ground we are too likely to reject it.—Langdon-Brown, Walter. *The Dead Hand in Medical Science*, *Lancet* 1: 279 (Jan 29) 1938.

## Clinical Notes, Suggestions and New Instruments

### ORTHOSTATIC HYPOTENSION. REPORT OF A CASE TREATED WITH NEOSYMPHRIN HYDROCHLORIDE

GEORGE D. CAPACCIO, M.D. AND CHARLES J. DONALD, M.D.  
SEATTLE

Orthostatic hypotension as an entity has been brought to the attention of the clinician chiefly since the report of Bradbury and Eggleston<sup>1</sup> in 1925. The condition is thought to be the result of dysfunction of the autonomic nervous system. There is loss of reflex vasoconstriction and reflex acceleration of the cardiac rate, usually associated with the assumption of the erect position. It is characterized chiefly by inability to maintain a blood pressure consistent with normal activity when erect. After the patient assumes the erect position there is a decided drop in both systolic and diastolic blood pressure with the production of marked weakness or actual syncope. There is associated failure of reflex cardiac acceleration and often deficient sweating. Chew, Allen and Barker,<sup>2</sup> in a recent report of six cases, enumerate additional signs and symptoms as (1) accentuation of symptoms in hot weather, (2) excretion of larger amounts of urine when recumbent, (3) appearance of youthfulness, (4) lowered basal metabolism, (5) evidence of organic change in the central nervous system, (6) loss of sexual desire, (7) pallor of the skin and (8) elevation of the blood urea to the upper limits of normal.

The following is the report of a case that has responded satisfactorily to the oral administration of neosynphrin hydrochloride.

**History**—A white woman, aged 56, had always enjoyed good health. In 1932, five years prior to admission, she experienced an attack of colitis, from which she recovered uneventfully. In 1933 she first noticed weakness, blurring of vision and vertigo on assuming an erect position. This gradually became worse to such a degree that in 1934 she experienced weakness, vertigo and actual syncope on standing. Consciousness was regained about one to one and a half minutes after recumbency and no ill effects were noted. There had always been an associated hypohidrosis more noticeable since 1932. In the fall of 1936 she became materially worse, and several months prior to admission she had been placed on a regimen that included adrenal cortex extract, digitalis and thyroid extract, with no material benefit. During these years weakness, blurring of vision and vertigo occurred constantly when the patient was standing up and for only short periods of time was there freedom from syncope. She learned to walk with the shoulders stooped forward, and on feeling faint she would automatically lower her head without stopping and would feel considerably better. Just prior to admission in April 1937, she had recovered from several attacks of nausea and vomiting, entailing a loss of weight of about 16 pounds (7.3 Kg.).

**Examination**—The patient was dark complexioned and well preserved. She appeared chronically tired and to be her stated age. The eyes, nose, throat, teeth, ears and neck were not remarkable. Examination of the heart gave no significant results. The blood pressure was as follows: recumbent 124 systolic, 82 diastolic, sitting 52 systolic, 36 diastolic and unobtainable, with syncope, on standing. There was an immediate return of consciousness with recumbency. The peripheral vessels were not remarkable. The lungs were clear and the remainder of the physical examination, including a neurologic survey, showed no manifestations of significance.

Examination of the blood revealed hemoglobin 105 per cent, 144 Gm. erythrocytes, 5,090,000 leukocytes, 8,800 differential.

From the Ma on Clinic.  
Frederick Stearns & Co. supplied the neosynphrin hydrochloride for clinical trial.

1 Bradbury, S. and Eggleston, Cary. Postural Hypotension. Report of Three Cases. *Am Heart J* 1: 73-86 (Oct) 1925.

2 Chew, E. V., Allen, E. V. and Barker, N. W. Orthostatic Hypotension. Report of Six Cases and Review of the Literature. *Northwest Med* 35: 297-303 (Aug) 1936. *Proc Staff Meet Mayo Clin* 11: 35-53 (Aug 19) 1936.

count normal. The urine was negative except for a slight amount of pus. The Wassermann and Kahn reactions were negative.

A diagnosis of orthostatic hypotension was made and efforts were directed toward determining its nature, whether primary or secondary. Further laboratory studies were as follows: Blood urea nitrogen was 14 mg, nonprotein nitrogen 51 mg per hundred cubic centimeters. The icterus index was 6, the blood chlorides 495 mg per hundred cubic centimeters, serum protein 6.66 Gm, serum albumin 4.49 Gm. A dextrose tolerance test showed the blood sugar to be 111 mg per hundred cubic centimeters fasting, 117 mg at the end of one hour, 90 mg at the end of two hours, and 76 mg at the end of three hours, urine sugar being 0 on all tests. The basal metabolic rate was minus 18. A Mantoux test was 1+

TABLE 1—Blood Pressure and Pulse Before Treatment

Position	Blood Pressure	Pulse	Comment
Recumbent	100/64	84	
Sitting	59/38	88	
Standing	38/2	90-98	Blood pressure often unobtainable (syncope) (cardiac rate) pulse imperceptible

Gastric examination showed free acid 0, total acids 4. Histamine was not used.

An x-ray film of the stomach and duodenum was negative. X-ray films of the colon were negative. A film of the gallbladder, taken elsewhere, showed slight impairment of function. A film of the abdomen revealed calcification in the region of the adrenal glands. X-ray examination of the chest, taken elsewhere, showed calcification of the hilar glands. An electrocardiogram was made with the patient both recumbent and sitting. There was evidence of coronary artery disease, with a less prominent Q<sub>1</sub> when sitting.

In spite of x-ray evidence of calcification in the region of the adrenal glands, it was believed that this was a case of orthostatic hypotension of idiopathic origin. The laboratory and clinical picture ruled out Addison's disease as the causative factor.

Before therapy was begun, additional clinical studies were made. Pilocarpine one-sixth grain (0.01 Gm) was given subcutaneously and there was marked generalized sweating. Atropine 1/100 grain (0.0006 Gm) caused no change in blood pressure or pulse rate. Carotid sinus stimulation resulted in no alteration of the pulse rate but caused an elevation of blood pressure of about 10 mm of mercury in both the recumbent and the sitting position. Response of blood pressure to the cold water test showed no increase. In fact, at the end of immersion in cold water the systolic blood pressure fell 10 mm and the diastolic 8 mm of mercury. At the end of two minutes the blood pressure returned to its former level. Representative readings of the blood pressure and pulse before treatment are given in table 1.

Simple flexing of the knees in a sitting position caused the blood pressure to fall 16 mm of mercury. A sharp fall of blood pressure occurred after eating. Advantage of this observation was taken during treatment in that two main feedings a day were given, with only milk and crackers at noon.

**Course.**—Administration of a high salt diet supplemented by additional sodium chloride, both in capsules and intravenously resulted in no improvement.

Ephedrine sulfate was given in gradually increasing doses, attaining a maximum of three-fourths grain (0.05 Gm) every two hours for six doses. The maximal blood pressure readings obtained in the various positions were as follows: recumbent, 148/104; sitting, 84/64; standing, 38/2 with dizziness after one minute.

This was supplemented by thyroid extract strychnine and an abdominal binder, with no appreciable benefit.

Benzedrine sulfate was next tried. This was given in doses of 20 mg at 7 a. m., 10 a. m. and 2 p. m., with no

material benefit. This drug was not used in large dosage or for a sufficient period of time to warrant any definite conclusion.

Pitressin was then used hypodermically in doses of 1 cc subcutaneously. Representative readings forty-five minutes after injection were as follows: recumbent, 170/102; sitting, 160/100; standing, 90/70.

Using this preparation, the patient walked for the first time without weakness, dizziness or syncope. However, she experienced substernal and abdominal distress and pain in the back following its administration. The substance was used four times a day for a reasonable length of time and it was found that the peak blood pressure was reached about forty-five minutes after injection. Its effect was not noticed after an hour and a half. Later it was used in conjunction with ephedrine sulfate. Pitressin was also tried by the nasal route, but no benefit was derived. Since pitressin was inconvenient for the patient to administer to herself and since it was associated with untoward symptoms such as distress in the chest and abdominal discomfort, it was discontinued.

As none of the aforementioned drugs proved entirely satisfactory or practical, neosynephrin hydrochloride was tried. Unfortunately during its early use it was discontinued because of an intercurrent attack of pyelitis with chills and fever. It might be noted that no alteration of blood pressure occurred during the febrile illness. To our knowledge this drug had not been used previously in the treatment of orthostatic hypotension, and the effective dosage could be determined only by trial. It was found that the blood pressure rose to a maximum after about one to one and one-fourth hours and remained at the higher level for a variable period of time. We were able to elevate the blood pressure from a basal of 80/52 in the morning to a maximum of 186/118 at 5 p. m., using 50 mg of the drug every two hours. Employing this dosage, the patient was able to be up and about almost at will. The blood pressure could be elevated from a basal of 80/50 to a maximum of 192/118, with no untoward side effects. There was no associated palpitation, precordial distress, nervousness or undue apprehension, as had been noted following the administration of ephedrine, benzedrine and pitressin. Except for a feeling of well being, the patient was unaware of an elevation of the blood pressure. The dosage was gradually altered so that on discharge she was taking 30 mg of neosynephrin every hour from 8 to 4 and she was advised to partake of a diet high in salt, with only a small noonday feeding.

TABLE 2—Blood Pressure and Pulse After Medication

Position	Blood Pressure	Pulse
Recumbent	140/90	96
Sitting	134/84	96
Standing	74/50	88

The patient was last seen July 29, 1937, two months after discharge from the hospital. She had reduced the dosage to the following: 20 mg of neosynephrin at 7:30 a. m., 20 mg at 9 o'clock and 20 mg at 12 noon. Blood pressure readings and pulse rates recorded on this date, three hours after medication are given in table 2.

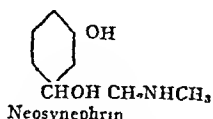
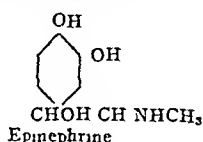
She had been able to perform all her household duties and partake of three full meals daily. Sweating had become more abundant. Since discharge, two months previously, she had experienced only one fainting spell. For the first time in four years she had been free from weakness and vertigo on standing.

## COMMENT

Treatment of idiopathic orthostatic hypotension is largely symptomatic. It is directed toward elevating the blood pressure so that when the erect position is assumed it will be sufficiently high to allow of normal physical activity. Ephedrine and benzedrine sulfate have been the drugs advocated but in this particular instance they did not prove satisfactory. The vasopressor effect of pitressin is too short lived and is attended by untoward symptoms which preclude its use. In



searching for a suitable sympathomimetic drug, neosynephrin hydrochloride was used. This is a synthetic drug closely related to epinephrine



It may be given by mouth, subcutaneously, intramuscularly or intravenously. It produces a marked elevation of blood pressure as the result of peripheral vasoconstriction and increased cardiac output (increased stroke-volume output). Carl A. Johnson<sup>3</sup> reports its use parenterally in the treatment of shock and remarks that, unlike epinephrine and ephedrine, it shows no tendency to produce irregular cardiac rhythm. He remarks further that unpleasant symptoms such as nervousness, apprehension and precordial distress attendant on the administration of epinephrine and ephedrine are not noted with neosynephrin hydrochloride. This has been our experience. Thus far no tolerance for the drug has developed. In fact, the dosage has been decreased from 150 mg to 60 mg daily.

#### CONCLUSIONS

Neosynephrin hydrochloride was used successfully in the treatment of a case of idiopathic orthostatic hypotension. Its chief advantage is the absence of untoward symptoms, usually associated with the administration of sympathomimetic drugs.

#### CARCINOMA OF THE CERVIX OF MICE RECEIVING ESTROGENS

W. U. GARDNER, PH.D., EDGAR ALLEN, PH.D., G. M. SMITH, M.D.  
AND L. C. STRONG, PH.D., NEW HAVEN, CONN.

During the past three years hyperplastic epithelial lesions of the cervix have been observed following the injection of estrogens into mice. Recently a carcinoma of the cervix has been obtained which has grown following transplantation without continuing the administration of estrogen to the host.

Several investigators have observed abnormal epithelial growths of the uterine cervixes of mice following the injection of estrogens. Loeb, Burns, Suntzeff and Moskop<sup>1</sup> reported a precancerous lesion in one mouse. Following the application of estrogen and 1, 2, 5, 6-dibenzanthracene, Perry<sup>2</sup> and Perry and Ginzton<sup>3</sup> observed lesions in the cervixes of three mice. Localized infiltrating epithelial overgrowths of the cervix were observed in three partially hysterectomized mice and in two mice with intact uteri following estrogen treatment<sup>4</sup>. Recently precancerous or carcinoma-like lesions of the cervix or vagina have been described<sup>5</sup>.

In our laboratory eighteen tumors have been observed in or near the cervixes of mice which have received large amounts of estrogens (500 international units of estrone benzoate or estradiol benzoate<sup>6</sup> weekly or every two or three weeks) over extended periods. Most of these growths were not apparent in the living animal. Some of the smaller ones were determined only after sectioning and microscopic study (fig. 1). Although even the smaller hyperplastic growths invaded the adjacent mucosa or muscularis, their continued growth independent of further estrogenic stimulation remained undetermined.

Recently a cervical tumor of large size was obtained in a mouse receiving estrogens and was successfully transplanted

into male and female mice of the same inbred strain. It is believed that this experiment affords the first convincing demonstration of a malignant cervical tumor induced by estrogens and indicates that the previously observed epithelial hyperplasias were probably early carcinomas or at least precancerous lesions.

#### PROTOCOL

A mouse of the C<sub>57</sub>H strain received 500 international units of estradiol benzoate every three weeks from an age of 42 to 266 days (a total dose of 5,500 international units). A



Fig. 1—Section of one of the smallest cervical lesions. It was found in a mouse (CBA) which had received weekly injections of 500 international units of estradiol benzoate from the age of 2 to 492 days. It was located at the lower end of the cervical canal. Reduced from a photomicrograph with a magnification of 110 diameters.

mammary tumor appeared at the end of this time and was removed. A second mammary tumor developed twenty-four days later and was removed. At this time weekly injections of 500 international units were started and continued for seventy-five days (5,000 international units). At the age of 359 days a marked enlargement of the pelvis was noted. Five days later the tumor protruded from the vagina and the mouse was killed. A large tumor extending from the bifurcation



Fig. 2—Section of an area of the largest cervical carcinoma. This tumor was growing very rapidly. It maintained its histologic structure following transplantation and in metastases to the lumbar lymph nodes (protocol of experiment in the text). Reduced from a photomicrograph with a magnification of 200 diameters.

of the uterine horns to the vaginal orifice was found. The entire posterior and lateral walls of the vagina were denuded and inflamed. The cervix was scarcely recognizable. The tumor completely surrounded the rectum and nearly filled the pelvis. The lymph nodes in the lumbar region were enlarged. Small pieces were removed from the lateral margin of the tumor and were grafted subcutaneously into one female and

From the Department of Anatomy, Yale University School of Medicine.

This investigation has been supported by grants from the Anna Fuller Fund, International Cancer Research Foundation and the Research Fund of Yale University School of Medicine.

<sup>1</sup> Loeb, Leo, Burns, E. L., Suntzeff, V. and Moskop, Marian. *Proc. Soc. Exper. Biol. & Med.* **35**: 320 (Nov.) 1936.

<sup>2</sup> Perry, Isabella H. *Proc. Soc. Exper. Biol. & Med.* **35**: 325 (Nov.) 1936.

<sup>3</sup> Perry, Isabella H. and Ginzton, L. L. *Am. J. Cancer* **29**: 680 (April) 1937.

<sup>4</sup> Gardner, W. U. *Occasional Publications American Association for the Advancement of Science Supplementary Series* **85**: 67, 1937.

<sup>5</sup> Suntzeff, V., Burns, E. L., Moskop, Marian and Loeb, Leo. *Am. J. Cancer* **32**: 256 (Feb.) 1938.

<sup>6</sup> The estradiol benzoate (progyon B) was supplied by the Schering Corporation through the courtesy of Dr. E. Schwenk.

four male mice of the same strain. All the grafts grew and measured 1 cm or more in diameter in eleven days. At this time one had infiltrated the skin and was removed. The other grafts grew progressively, three invading the skin by the seventeenth day. The tumor is now growing in the second transplant generation.

Although the exact point of origin of this tumor could not be determined on account of its advanced growth, it was

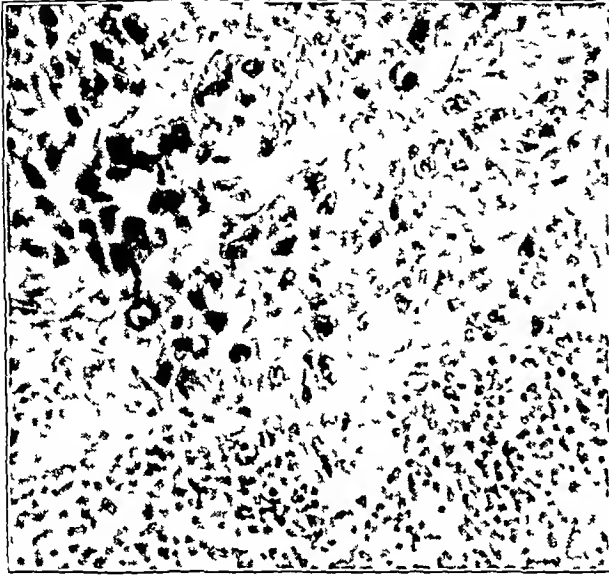


Fig 3—Section of a metastasis of the tumor shown in figure 2 in one of the lumbar lymph nodes. Slightly reduced from a photomicrograph with a magnification of 250 diameters.

histologically similar to the smaller tumors observed in the cervical canals or the vaginal fornices of other mice receiving estrogens. This tumor consisted of squamous cells in dense irregular masses or arranged in columns or cords (fig 2).



Fig 4—Section of a peripheral area of a transplanted tumor removed eleven days after the initial graft had been placed in the axilla. Slightly reduced from a photomicrograph with a magnification of 200 diameters.

The vaginal surface was infiltrated with leukocytes. In places the tumor cells were continuous with the squamous epithelium of the anterior wall of the vagina. The peripheral parts of the tumor were growing rapidly, extending into the muscles of the rectum and invading the neck of the bladder. The growth of the tumor was primarily in the direction of the vulva, as shown by the involvement of the perineum during the five days it was under observation. Metastatic growths were found in the lower abdominal lymph node (fig 3).

Microscopic study of the excised mammary tumors (one an adenocarcinoma and one an adenocarcinoma of a cystic hemorrhagic type) precludes a metastatic origin of the cervical tumor.

The cervix of the mouse differs greatly in some ways from that of the human being. It contains no glands and is lined by a squamous epithelium. Also unlike the human cervix it shows little tendency to develop spontaneous tumors. We have found no hyperplastic lesions of the cervix in more than 100 old female mice, untreated or receiving injections of sesame oil (solvent for the estrogen). Slye, Holmes and Wells<sup>7</sup> observed only twenty-two uterine tumors among 39,000 mice (examined post mortem), eleven leiomyomas, seven sarcomas, three adenomas and one teratoma. The first seven tumors observed in our laboratory in mice receiving estrogens appeared in a group of forty-three female mice injected. The earlier development of mammary tumors probably decreases the incidence. Most of the mice with the smaller cervical lesions were killed after the mammary tumors developed. The breast tumors are now being removed in order to lengthen the life of the animals and allow time for development of cervical growths.

#### SUMMARY

A large carcinoma of the cervix uteri with metastases to the lumbar lymph nodes developed in a mouse following the injection of 10,500 international units of estradiol benzoate over a period of 319 days. This tumor was grafted successfully into male and female mice of the same strain and grew rapidly without further estrogen stimulation. Smaller, invading epithelial growths observed in eighteen other mice are probably precancerous growths or early carcinomas.

## Special Articles

### ELEVEN DEATHS FROM A CANCER TREATMENT

As we go to press, eleven persons in Orlando, Fla. have died, one other is seriously ill, and two others are mildly ill, following the administration to them by physicians of injections of a treatment for cancer, the preparation apparently grossly contaminated with tetanus toxin. The cancer treatment used was R, series 152, prepared by the Biochemical Research Foundation of the Franklin Institute, Philadelphia, Ellice McDonald, M.D., Director. Dr. McDonald has for some time been interested in the product for cancer called "ensol" and R, we understand, is a product of the type of "ensol" made with a special substrate of cancer tissue. The "ensol" treatment for cancer was first launched in October 1935 by Dr. Hendry C. Connell of Kingston, Ont. At that time, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION published a warning.<sup>1</sup> We quote:

This account of the methods pursued by Dr. Connell in promotion of his product reveals procedures more like those of the charlatan than of the scientific investigator. Moreover, his statement of the method of preparation of his product is so incomplete and confused as to make duplication of his work impossible.

The results he claims are similar to those which have been obtained with a half-dozen other methods. In a few cases there are apparently temporary remissions due to damage of the blood vessels in the tumor. The same effects have been produced by Coley's fluid, by various bacterial toxins, by injection of Witte's peptone and by a number of similar foreign proteins. Results just as good occur with the methods used by most of the cancer quacks. There does not appear to be any real evidence that

<sup>7</sup> Slye, Maude, Holmes, H. T. and Wells, H. G. *Cancer Research* 5: 96 (April) 1924.  
<sup>1</sup> The Connell Cancer Cure editorial. *J. A. M. A.* 105: 1122 (Oct. 5) 1935.

an antitumor enzyme is present in this mixture. Notwithstanding these considerations, newspapers have heralded widely Dr Connell's claims. Great numbers of sufferers from cancer have been stimulated to false hopes. Public officials, university officials, and some Canadian physicians have been led into participation in the promotion of a project which will inevitably bring them grief. The true test of a cancer cure is recovery of the patient and disappearance of the tumor. How many of Dr Connell's patients with cancer will be alive in five years? Time is the true tester of cancer cures—yet newspapers continue to lead cancer sufferers to promoters of cancer cures that have been tested only a few weeks or months. If Dr Connell really realized his responsibility he would have waited to inform the newspapers until he knew whether or not his "discovery" actually had merit. Faith may move mountains but it is yet to be shown that it will cure cancer, even when given in the form of something called "Ensol."

Since 1935 the record of the development of the Connell treatment of cancer has not been inspiring. Researches made on cancer in mice have invariably resulted in failure to demonstrate any value to the method. In August 1936 a bulletin was issued indicating that the Hendry Connell Research Foundation had become affiliated in November 1935 with the Biochemical Research Foundation of the Franklin Institute of Philadelphia. It contains reports of cases treated with "ensol," most of which had been under treatment so short a time that judgment as to the value of the treatment is impossible. In one statement it is said that "382 cases were treated, with a death rate of 47 per cent." The statement is also made that "53 per cent of hopeless and abandoned cases are now alive." Although the period of treatment in most of them was not even one year, it is argued that "ensol does influence the course by partial or complete arrest in cases of advanced cancer."

In October 1936 Dr Charles Phillips<sup>2</sup> published in the *Texas State Journal of Medicine* a report of a visit he had made to Kingston. Here he describes the manufacture of "ensol" as follows:

*Bacillus histolyticus* is a relatively harmless germ, elaborating during its growth an active enzyme which, if it were allowed to act upon protein material at body temperature, would more or less completely dissolve it by enzyme action. By trial, it was found that this germ would autolyze cancer as any other protein, and then the crux of the whole plan was reached when it was believed that the resulting enzyme solution, if given in suitable dose to a suitable cancer patient, would cause regression of that cancer selectively. In this way, the general rules about tissue specificity and immunology were followed. When the program was finally worked out, it called for careful laboratory handling of the germs inoculated onto pieces of cancer removed from a fresh cancer and finally for giving the autogenous solution, now called Ensol, to the patient from whom the piece of cancer was excised. I saw racks of tubes, in the incubator, which had been inoculated for seventy-two hours with *Bacillus histolyticus*. The fluid was filtered through Berkefeld filters and held for about twelve hours for clarity as sterility control, the liquid tubed and labeled with Ensol batch number and date, and this was then ready for injection into the patient. Both the autogenous Ensol and stock Ensol made from any fresh available carcinoma material were tried, but before long it was found too difficult to stick closely to the autogenous method. Thus, gradually, a certain amount of specificity was lost. The reputation of the new treatment brought numbers of cancer cases to Kingston, and so there was no actual dearth of fresh material. Aseptic technique was used throughout the removal of the tissue and its laboratory development into Ensol, but I found a poorly equipped place for work and a number of potential breaks in straight bacteriologic technique under the supervision of a relatively inexperienced assistant technician.

He appeared to me to be doing the best he could under difficulties of being temporarily housed in the basement of the physics building of Queen's University.

In October 1936 letters became available in the headquarters office of the American Medical Association indicating that Dr Elhee McDonald was doing his utmost to promote the "ensol" method, endeavoring to establish in Chicago an office to which patients could be referred and offering, indeed, to pay the expenses of a physician to spend two months in Kingston and then to become established in Chicago. He said "It looks as if we could refer you enough patients to make it well worth your while." In another letter he said:

I am sure in the past four months I could have sent twenty such patients who will require at least one hundred injections each, if you had knowledge of the treatment and had had direct experience in its use. You could carry on this treatment as well as your own practice. If it got to be too much for you to handle, you could easily impress an assistant, and I am inclined to think in the near future, when this treatment really gets going, it could be made quite a real practice and also a reasonably remunerative one. We would like to have some doctor in Chicago who had knowledge of the treatment and who is able to give first hand advice in consultation with the other Chicago doctors who are using it. We could control much for you by making you more or less a central dispensary for the distribution of ensol. We cannot make you the sole distributor, but we could wangle it around so that most men would have to come to you in consultation.

Apparently since 1936 the Hendry Connell Research Foundation of Kingston and the Biochemical Research Foundation of the Franklin Institute have been able to secure physicians in various portions of the United States to act as distributing agents and experimenters with "ensol."

On Friday, March 25, Dr T. A. Neal of Orlando, Fla., who has for some time been using "ensol" in his practice, treated his patients with the product called R, series 152. Some of the patients reported reaction in the form of a sore arm on March 26. On March 27, many became ill. By March 28 all were seriously ill with symptoms identical with those of tetanus. By March 31 seven had died, four were seriously ill and two were expected to die. Postmortem examination revealed cerebral edema and changes in the viscera. Up to March 31, tests had been made with the product called "ensol." At that time Dr Neal, who had naturally been extremely disturbed about the matter, pointed out that he had used also the product called R, series 152. A vial of this preparation was injected into three guinea pigs, and three others were injected with "ensol." The three guinea pigs injected with R, series 152, died and the three with "ensol" did not die.

Immediately on receiving the news of this event by long distance telephone from Orlando, Fla., the headquarters of the American Medical Association notified the Food and Drug Administration and the National Health Institute in Washington, D. C. Both organizations immediately sent investigators to Orlando, Fla., to Kingston, Ont., and to Philadelphia. Dr H. A. Day of Orlando, president of the Orange County Medical Society, who has been active in the investigation, now writes that on April 1 one patient who had been taking this treatment came in bringing with her a vial of R, series 152. This patient had developed symptoms of tetanus. According to her statement, she had received two doses of R, series 152, one on March 29 and one on March 30. All specimens of R, series 152, were obtained and studied. Part of the material was shipped to Washington. The evidence as we go

<sup>2</sup> Phillips, Charles. Connell Cancer Treatment. Its Present Status. *Texas State J. Med.* 32: 406 (Oct.) 1936.

to press, indicates that all the animals receiving only R, series 152, dated March 7, died of tetanus. The other animals injected at the same time with R, series 152, and with large doses of tetanus antitoxin did not die. It is now announced also that Ellice McDonald, director of the Biochemical Research Foundation, claims that the bacterial filtrate has no contamination. Nevertheless, all of the material under investigation has been recalled and the names of physicians of the United States who are using the product have been turned over to government agencies. Moreover, C. G. Power, health minister of Ontario, has forbidden all distribution of "ensol" until the investigations now under way are completed. The conclusion is inevitable that the product called R, series 152, which is alleged by the Biochemical Research Foundation of the Franklin Institute of Philadelphia to be a type of "ensol," is the product which contained sufficient tetanus toxin to kill those in whom it was injected. Appreciation is due to physicians of Orange County, Fla., for their prompt action in exposing this matter and for their activity in determining all the facts as soon as possible. The investigations by the United States Public Health Service and the Food and Drug Administration are proceeding in an endeavor to fix the responsibility for this tragedy.

## ROCKY MOUNTAIN SPOTTED FEVER

R. R. PARKER, PH.D.

Director, Rocky Mountain Laboratory, United States Public Health Service  
HAMILTON, MONT.

The rickettsioses of man include a number of tick, louse, flea and mite borne diseases caused by infectious agents termed rickettsiae, the known characteristics of which suggest that they may be a group of micro-organisms intermediate between bacteria and filtrable viruses. The literature and the classification of these rickettsial diseases have been and still are in a somewhat chaotic condition, owing, on the one hand, to the fact that an unavoidable lack of knowledge of the identity of the diseases observed has frequently necessitated that they be referred to by local or other equally unfortunate designations and, on the other, to premature attempts to classify them on the basis of geographic occurrence or with regard to the nature of their respective insect or arachnid vectors. Some semblance of order is now becoming apparent, however, as the result of more recent and more logical efforts to segregate them by the more significant criteria afforded by combined epidemiologic, pathologic and serologic data. On this basis three groups seem quite definitely established—the typhus group, the Rocky Mountain spotted fever group and the Japanese river fever group. Several are still unassociated. The typhus group consists of historic louse-borne typhus and endemic flea-borne typhus, but the question of whether they are caused by the same virus as altered by passage through different vectors is still unsettled. The Rocky Mountain spotted fever group includes the following tick-transmitted diseases: Rocky Mountain spotted fever of North America, São Paulo exanthematic typhus of Brazil and boutonneuse fever of southern Europe and northern Africa. Here again one finds uncertainty as to how nearly identical they should be considered. The

Japanese river fever group consists of several more or less closely related mite-borne infections of southern Asia, Japan, Formosa and Oceania.

The two rickettsioses in which North Americans are interested are endemic typhus and Rocky Mountain spotted fever. The latter is the more widely distributed and the more important economically and is the subject of this paper. The data offered will be presented under four sectional headings: (1) ticks concerned in the maintenance and transmission of the virus, (2) the virus and the disease in nature, (3) the disease in man and (4) prophylaxis.

### TICKS CONCERNED IN THE MAINTENANCE AND THE TRANSMISSION OF THE VIRUS

Three ticks are proved transmitting agents of the virus of Rocky Mountain spotted fever: the Rocky Mountain wood tick, *Dermacentor andersoni*, the American dog tick, *D. variabilis*, and the rabbit tick, *Haemaphysalis leporis-palustris*. All three of these ticks occur in both the United States and Canada, while *variabilis* extends southward into Mexico and the rabbit tick into Central and South America.

The Rocky Mountain wood tick is found throughout the Rocky Mountain region and adjacent areas, extending into the eastern portions of the Pacific Coast states and into western North and South Dakota and Nebraska. It is abundant in southeastern British Columbia and occurs in parts of southern Alberta and at least southwestern Saskatchewan. The larval and nymphal stages engorge on a great variety of rodents and certain of the smaller carnivores, most of which are susceptible to spotted fever. The adults infest mainly large animals, wild and domestic, but occur to some extent on small animals, particularly jack-rabbits and porcupines. The larvae are active during the summer, the nymphs and adults during the spring and early summer. In the higher altitudes all stages may occur somewhat later in the season. The life cycle of the Rocky Mountain wood tick is normally completed in two years. The adults bite man freely, and the nymphs occasionally attach to children.

The American dog tick is widely distributed throughout the Central and Eastern states and is fairly numerous in many sections. East of the Rocky Mountain region it overlaps the eastern limit of the Rocky Mountain wood tick. On the Pacific Coast it is found in western California and occasionally in southwestern Oregon. In Canada it occurs eastward from southern Manitoba and has been reported in Labrador. Information concerning the biology of this species is relatively sketchy compared to our knowledge of the Rocky Mountain wood tick. The early stages, like those of the latter tick, feed on rodents, but apparently on a much smaller range of species. Some species of mice are recognized to be important hosts. The common name of this tick results from the prevalence of the adult stage on dogs. However, this stage is common on deer and is also found on the larger domestic animals, especially cattle, and even, to some extent, on the smaller wild animals. Data concerning the seasonal occurrence of the immature stages are incomplete. The nymphs apparently engorge over a period of some months and have been found feeding even during the winter. The adults appear later in the spring and remain active later into the summer than do those of the Rocky Mountain wood tick. This tick also bites man freely.

From the Rocky Mountain Laboratory of the National Institute of Health.

Read before the first Rocky Mountain Medical Conference, Denver, July 21, 1937.

The rabbit tick has the widest distribution of any of the three species mentioned. It occurs essentially throughout the United States, extending southward into South America and northward into central Alaska and into Canada at least as far as the southern end of Hudson Bay. All three stages are limited to various species of rabbits (some of which are more heavily infested than others) and to certain ground-frequenting birds, especially certain game birds. In the northern part of the United States it is prevalent from early spring until early fall. In the South its seasonal occurrence is considerably extended. When conditions are favorable, its life cycle is completed in one year. It occurs on man only rarely. In contradistinction to the two ticks just discussed, it carries consistently a very mild strain of spotted fever virus.

There are five other species of ticks in the United States that are potential transmitting agents. Under laboratory conditions they have been demonstrated to be fully as efficient vectors as the proved carriers. It seems probable that two of these ticks, *D. occidentalis*, the Pacific Coast tick, of California and Oregon, and *Amblyomma americanum*, of the South Central and the Southeastern states, are actual natural carriers. This has not been proved, but there is suggestive evidence. The latter species has been reported from as far north as southern Manitoba. The other three species are *Amblyomma cajennense*, which occurs in the southern tips of Texas and Florida and is the known transmitting agent of São Paulo exanthematic typhus, a disease prevalent in the vicinity of São Paulo, Brazil, which is immunologically identical with Rocky Mountain spotted fever, *Rhipicephalus sanguineus* the brown dog tick, which is abundant along the Gulf Coast and occurs northward sporadically as far as Minneapolis and westward to Phoenix, and is a known carrier of boutanense fever in southern Europe and northern Africa, and, finally, *D. parumapertus*, which occurs on rabbits in the southern Rocky Mountain region and along the Pacific Coast northward into Oregon. The host relationships of all these five species are such that any tick not already carrying infection is likely to do so sooner or later.

Three of these species frequently bite human beings, and, of the other two, the brown dog tick does so commonly in Europe and Africa but is little known as a parasite of man in North America, while *D. parumapertus* bites man but rarely and can be concerned only as a possible infection-carrier in nature.

#### THE VIRUS AND THE DISEASE IN NATURE

Most studies concerning the virus and spotted fever in nature have been made in relation to the Rocky Mountain wood tick, and the statements which follow refer to this tick unless otherwise stated.

The actual mechanism by which the virus is maintained and perpetuated in nature has not been definitely demonstrated. The three following sets of factors are evidently concerned, but their relative importance is not clear.

1 *Stage to Stage and Generation to Generation Transmission of the Virus in Ticks*—In the case of the three proved tick carriers, infection acquired by larvae or nymphs is passed on to the adult stage and from a certain percentage of infected females it is passed on through the eggs to the larvae of the next generation. Also infected male ticks may infect females during impregnation. It may be that this

mechanism is all that is necessary to assure continuity of the virus in nature, although theoretically it can be shown that this is unlikely.

2 *Stage to Stage Transmission of the Virus in Ticks Plus the Starting of New Lines of Tick Infection Each Year by the Simultaneous Feeding of Infected and Noninfected Ticks on a Susceptible Host*—When infected larval, nymphal or adult ticks feed on susceptible hosts, the last named presumably become infected, and noninfected ticks which engorge on these hosts during the infectious period may acquire the virus. The following season the next succeeding stage of the tick may in turn infect its host and through it still other ticks. New lines of tick infection can thus be started each year. It was formerly supposed that only larvae and nymphs would normally function in this manner, but now that adult-tick hosts such as dogs and sheep are known to be mildly susceptible, it is apparent that the male and the female ticks may also have a part. This seems particularly likely in the case of the American dog tick.

3 *The Occurrence of Spotted Fever Virus in the Rabbit Tick*—As previously mentioned, the rabbit tick, in contradistinction to the Rocky Mountain wood tick and the American dog tick, consistently carries an extremely mild type of the virus. When virus-carrying rabbit ticks are tested by means of laboratory animals, the resulting infection is usually inapparent, that is, it is so low grade that the animal becomes immunized without any febrile reaction. Sometimes there are mild symptoms. The relationship of this tick to the spotted fever problem, particularly to the maintenance and perpetuation of the virus in nature, offers an intriguing field for study. It has the widest geographic distribution of the three proved carriers, and spotted fever virus has been demonstrated in it far north of any known occurrence of Rocky Mountain spotted fever in man and far beyond the northern distributional limits of the other two carriers. It is evident therefore that the virus can persist in the rabbit tick independently of the Rocky Mountain wood tick or the American dog tick. But is infection in the last-named ticks independent of infection in the rabbit tick? The answer to this question is less apparent. The Rocky Mountain wood tick and the rabbit tick meet on rabbits. A rabbit therefore is a medium through which infection can apparently be passed back and forth between these two species of ticks. The extent to which *D. variabilis* infests rabbits is unknown. Some species of rabbits average from a few hundred to several thousand rabbit ticks per individual, depending on the part of North America concerned.

The percentage of ticks that carry infectious virus has been studied mainly in the Rocky Mountain wood tick and is different in different localities and from year to year even in the same locality. It is frequently less than 1 per cent and rarely exceeds 5 per cent, although in small, localized areas as high as 11 per cent has been demonstrated. Local tick populations which have shown 3 per cent to be infectious one year have the next year failed to show evidence of a single infected tick. In the case of the rabbit tick as studied in Minnesota, Dr. R. G. Green of the University of Minnesota Medical School and I have been able to show infection in between 3 and 4 per cent.

The maximum level of virulence of spotted fever virus varies in different foci in which the disease is endemic, but in most areas it remains reasonably con-



stant from year to year. In some of these foci the maximum level is high and causes a correspondingly high mortality in laboratory animals or in man, in others it is low and inapparent infections are produced consistently. In most areas it is intermediate.

The virus in any individual Rocky Mountain wood tick of a local tick population may range in virulence from a nonimmunizing, nondemonstrable phase to one of the prevailing maximum local virulence. This is doubtless true also of the virus in certain of the other proved and potential tick carriers. The phase present at any particular time depends on the season of the year and how recently the tick may have ingested blood. In a fasting, hibernating Rocky Mountain wood tick or one just emerging from hibernation, the virus is usually either completely inactive or in a phase which causes inapparent infections when injected into laboratory animals. However, if such a tick is incubated or is allowed to ingest blood, the virus becomes "reactivated" and soon reaches its maximum potential virulence.

At this point it is worth while to consider the question of whether or not the occurrence of Rocky Mountain spotted fever in the Central and Eastern states has been the result of a natural spread or of transportation of the virus from the Rocky Mountain region. While it is now recognized that an intensive spread of both the tick and the virus has been in progress within the range of the Rocky Mountain wood tick ever since settlement of the West was begun, yet there is no evidence of any consequential outward expansion of the range of this tick or of the area within which it is the agent of the transmission of spotted fever. Nor are there any data which suggest that transportation of the tick by stock or other animals shipped from the Rocky Mountain region has ever resulted in establishing in nature either this tick or the virus of spotted fever at any point in any of the twenty-four Central and Eastern states in which Rocky Mountain spotted fever has been reported since 1930. If the virus of this disease as met with in *D. variabilis* was derived from the ticks of the Rocky Mountain region, it would seem probable that a clearly marked trail would have been left along the railroad lines over which stock has been shipped eastward for many years. This is not the case, however. It is also odd that, under such circumstances, Rocky Mountain spotted fever should be most prevalent in the eastern portion of the *D. variabilis* range rather than the western. Other considerations relating to the biology of both *andersoni* and *variabilis* are concerned also but are too lengthy to discuss.

On the other hand, it is now recognized as probable that spotted fever infections have been occurring in some of the far Eastern states for at least thirty years, and it seems not at all impossible or improbable that the virus of this disease has been endemic in the Eastern and the Central states fully as long as in those farther west.

In connection with spread, it is worth noting that fully as high a percentage of spotted fever-infected rabbit ticks is met with among those taken from birds as among those collected from rabbits, and since birds of the species involved move about considerably within at least limited areas, it may be readily comprehended that this tick and its bird hosts form an excellent means for intensive local distribution of the virus and possibly in some instances for its transportation over longer distances.

#### THE DISEASE IN MAN

In the United States, Rocky Mountain spotted fever is endemic in at least thirty-nine of the forty-eight states. It has been known to be present for many years in all eleven of the Rocky Mountain and Pacific Coast states and more recently in North and South Dakota, and since 1931 it has been reported from twenty-six of the Central and Eastern states. It is most prevalent in the northern Rocky Mountain region and adjacent areas and in parts of North Carolina, Virginia and Maryland. It is likely endemic also in at least some of the Central and Eastern states from which it has not yet been reported.

The greatest number of cases occur in groups of the population engaged in some outdoor occupation or pursuit, principally agriculture. Persons living in range areas, particularly those handling sheep, are in the greatest danger. Other groups affected include hunters and trappers, prospectors and miners, forest service personnel, survey crews, highway construction workers, section hands on railroads, and those who only occasionally visit infected areas for business reasons or as fishermen, picnickers, campers and tourists. In the West only a small percentage of cases occur in city dwellers. This percentage is somewhat higher in some parts of the East. A few cases have been known even in persons who had been confined to bed for weeks. In such instances infected ticks have been brought into the city or home by some intermediary person or animal.

Age and sex incidence depend both on occupation and on whether families live actually within, or only adjacent to, tick-infested areas. In the sagebrush desert regions of the western part of the United States most infections are contracted by men, because of occupational hazards. When families live within infected areas, however, a much higher percentage of cases occurs in women and children. The considerable percentage of cases in women and children in the eastern part of the United States is probably due in part to the fact that the eastern transmitting agent, the American dog tick, infests the dog, a household animal. The Rocky Mountain wood tick is found on dogs far less frequently.

In the West, most of the cases occur during the spring and early summer and the greatest number in April and May, the season of prevalence of the Rocky Mountain wood tick. In sections of higher altitudes (Wyoming, for example), however, the danger season extends further into the summer. Occasional cases have been reported during the late summer, fall and winter months. Persons with fall and winter infections have usually become infected in mountainous areas. In the East, most cases occur in the summer, the season of greatest activity of the American dog tick.

Annual incidence varies and is influenced markedly by meteorologic factors that affect the duration and the intensity of tick activity. Sometimes there is a complete absence for a series of years of cases within a locality in which the disease is endemic. In the Rocky Mountain region the trend of prevalence over considerable periods has been and continues to be more or less definitely associated with conditions incident to settlement and the subsequent type of local agricultural development. In some sections the activities incident to settlement, such as the clearing and bringing under cultivation of large areas of timber or of sagebrush, have created, temporarily or even for considerable periods, the very conditions essential for an

## RIBOFLAVIN

## PHYSIOLOGY AND PATHOLOGY

A. G. HOGAN, PH.D.

COLUMBIA, MO

increasing prevalence of both ticks and spotted fever. The ultimate trend of local prevalence, however, is dependent on the type and extent of permanent agricultural development. In areas where agriculture has become intensive, prevalence has decreased, while in those where it has remained extensive, particularly in range country, it has usually continued about the same and in some instances has increased. The best example of decreasing prevalence is in the Snake River Valley of southern Idaho where there were formerly several hundred cases a year and are now less than fifty. The outstanding example of increasing prevalence is eastern Montana, where spotted fever was rare before 1914 but has since been gradually increasing. There were over 100 cases in 1935. This increasing prevalence has been due at least partly to the progressively more intensive distribution of the tick vector, a natural result of the activities of development. Ticks are now numerous in parts of eastern Montana where they were unknown twenty years ago.

The virulence of the infection in man varies with locality and in any selected area is correlated with the maximum level of virulence of the virus strains in the local tick population. Thus, in most foci the case fatality rate remains reasonably constant. In the Bitterroot Valley section of western Montana the death rate for adults averages about 80 per cent and for children is 37.5 per cent. A high case fatality rate, however, is not confined to the Bitterroot Valley, as is so commonly believed, but prevails in other parts of western Montana, in certain localities in Wyoming and Oregon, in all affected portions of northern Idaho and along the extreme eastern edge of Washington. In other foci the case fatality rate varies to a minimum of at least 10 per cent. In a few areas it appears to be gradually increasing. Southern Idaho again affords a good example. In former years, when cases were more numerous, the death rate was estimated to be about 5 per cent. At the present time with fewer cases, the rate is from 25 to 35 per cent.

To the best of present information spotted fever infections are acquired only through the medium of ticks, usually by tick bite. There is no characteristic lesion at the site of tick attachment, and not infrequently the site of the bite cannot be found. If a lesion not due to irritation is present it is likely the result of secondary infection or some tick-borne agent other than the spotted fever rickettsia. Occasionally there is an enlargement of the regional lymph nodes draining the area. Some few infections are probably contracted through the skin by contamination of the body surface with tissues of infected ticks. This contamination may occur as a result of hand picking ticks from domestic animals.

In a previous section I have referred to the phenomenon of "reactivation." This bears an important relationship to the transmission of infection to man. The virus contained in a tick which attaches in the early spring does not usually become frankly infectious for eight hours or longer after attachment, i.e., until the virus has been "reactivated." Later in the season, however, "reactivation" has been at least partially accomplished by the prevailing warmer temperatures, and infection apparently may occur more quickly. Were virus "reactivation" not necessary, there would be many more infections. I have known infected ticks to feed for as long as three days without transmitting the virus.

(To be continued)

*This article and others recently published or to be published comprise a new series on the present status of our knowledge of the vitamins. They have been prepared under the general auspices of the Council on Pharmacy and Chemistry and the Council on Foods. The opinions expressed are those of the authors and not necessarily the opinions of either council. The articles will be published later in book form.—Ed*

In the course of their studies on pellagra Goldberger and Lillie<sup>1</sup> used rats as experimental animals and produced a characteristic deficiency disease. Ophthalmia and bilaterally symmetrical denuded areas were the most important symptoms, and these are still the most common and most characteristic. Goldberger and Lillie reported that "some of the animals have developed a dermatitis at one or more of the following sites: ears, front of neck and upper part of chest, forearms, backs of forepaws, shins and the backs of the hind paws." Other workers<sup>2</sup> also observed the more severe symptoms but they are comparatively infrequent. Goldberger's description was reviewed by Sure,<sup>3</sup> so additional details will be omitted. The agent that prevents the lesions was designated by Goldberger as the P-P (pellagra-preventive) factor. American biochemists designated the new vitamin as G, the British workers called it vitamin B<sub>2</sub>. Goldberger made a very important contribution, but, as is now known, most of the symptoms of the rat disease he described are prevented by riboflavin. This substance does not prevent pellagra, so the two diseases are not analogous.

Goldberger and Lillie did not report the incidence of the symptoms due to a lack of their P-P factor, but other workers have encountered the most extreme variability. Some workers report no symptoms except failure to grow. Others produce them readily in one trial and have difficulty in another.<sup>4</sup> Roscoe<sup>4</sup> reported that of 191 rats deprived of vitamin B a little less than 57 per cent developed dermatitis in an average period of ten weeks. For some years these inconsistencies were puzzling, and it was not possible to eliminate them until the technique was further improved. Hogan and Hunter<sup>5</sup> had announced that the new factor, vitamin G, is destroyed by ultraviolet irradiation. It eventually developed that this irradiation not only destroyed vitamin G (or riboflavin in the more recent terminology) but also destroyed another vitamin which had not been recognized at that time. Since the symptoms of these two deficiencies sometimes have a superficial resemblance, neither could be sharply defined until both were more or less fully understood.

1 Goldberger, Joseph and Lillie, R. D. A Note on an Experimental Pellagra-like Condition in the Albino Rat. *Pub. Health Rep.* 41: 1025 (May 28) 1926.

2 Richardson, L. R. and Hogan, A. G. Skin Lesions of the Rat Associated with the Vitamin B Complex. *Research Bull.* 241. Missouri Agric. Exper. Sta. 1936.

3 Sure, Barnett. The Present Status of Vitamin B (G). *J. A. M. A.* 99: 26 (July 2) 1932.

4 Chick, Harriette and Roscoe, Margaret H. Dual Nature of Water Soluble Vitamin B. II. Effect upon Young Rats of Vitamin B Deficiency and a Method for the Biological Assay of Vitamin B<sub>2</sub>. *Biochem. J.* 22: 790 1928. Roscoe, Margaret H. Note on the Incidence of Dermatitis Among Rats Deprived of Vitamin B. *Biochem. J.* 27: 1333 (No. 5) 1933.

5 Hogan, A. G. and Hunter, J. F. The Plural Nature of Vitamin B. *J. Biol. Chem.* 78: 433 (July) 1928.

The technic of Hogan and Hunter was modified<sup>6</sup> in certain respects, and when the modified procedure was used a characteristic dermatitis developed in every experimental animal that survived the depletion period. These lesions have only a superficial resemblance to those described by the previously mentioned workers, and since they did not appear when the rations contained corn starch it was suggested that there are several types of dermatitis, each due to a different deficiency. This suggestion was soon corroborated. The experimental procedure not only demonstrated that there are two different types of lesions, each the result of a different deficiency disease, but it made it possible to produce either, consistently, and with an incidence of practically 100 per cent. It has been suggested<sup>8</sup> that in conformity with the American system of nomenclature the new vitamin be designated as H. It is B<sub>6</sub> in the British terminology. Since the term vitamin G as first used included at least two vitamins, there is no agreement as to what its precise meaning should be now. Evidence obtained with the rat shows that the old vitamin B complex contains vitamin B (B<sub>1</sub>), riboflavin and H (B<sub>6</sub>), there is no doubt that at least one more must be added<sup>2</sup> and several more have been suggested.

The ration of Richardson and Hogan proved to be well adapted also for studies on riboflavin deficiencies. Unpublished data show that 155 rats were on rations deficient in this substance long enough for the characteristic denuding symptoms to develop. Of these, 136, or 95 per cent, became denuded in periods ranging from six to twenty-four weeks. Some of the remaining 5 per cent were used for other purposes during that period, so with the technic now available practically every rat that survives long enough will develop the typical symptoms.

#### IDENTITY OF VITAMIN G (B<sub>2</sub>) AND RIBOFLAVIN

To digress for a moment, Blyth<sup>9</sup> had demonstrated the presence in milk of a pigment which he called lactochrome. In more recent years several groups of workers became interested in this substance, and more or less concentrated preparations were obtained<sup>10</sup> from milk, liver, heart, kidney, muscles, egg white and yeast. Since the pigment was first isolated in crystalline form<sup>11</sup> from milk, it was designated as lactoflavin, but it is more commonly known as riboflavin in the United States. This substance is yellow, with a characteristic green fluorescence.

Kuhn and his collaborators were interested in vitamin G (B<sub>2</sub>), and early in their work they observed a parallelism between vitamin B<sub>2</sub> activity and the intensity of the yellow color and green fluorescence. Both

the vitamin and the pigment were destroyed on exposure to light, so it was assumed that they were identical, and this assumption was confirmed.<sup>12</sup> Of the various animal tissues examined liver and kidney contain the largest amount. One unit is contained in from 0.2 to 0.4 Gm of fresh weight of liver and kidney and in 0.5 Gm of ox heart. The heart muscle contains about five times as much of the vitamin as does striated muscle. Their unit is from 8 to 10 micrograms of riboflavin, the amount that permits a gain by a rat of 40 Gm in thirty days. Edgar and her collaborators<sup>13</sup> report that approximately 40 micrograms daily is required for optimum growth.

Gyorgy and his collaborators observed that if liver or yeast is extracted in the cold a small portion of vitamin B<sub>2</sub> will dialyze, but that if the extracting fluid is heated then it all dialyzes readily. Evidently some of the vitamin is free and the remainder is bound to a carrier of high molecular weight. This is also true of riboflavin, some is free and some is bound to a colloidal carrier, so the pigment is probably both an enzyme and a vitamin. When the union is broken the enzymic properties are lost, but the vitamin effect remains.

Karrer, Salomon and Schopp<sup>14</sup> determined the free flavin in liver, also the amount that is combined. One determination showed 76 per cent, another 53.5 per cent, in high molecular weight combination. In cow's milk about 90 per cent of the total amount is free, but Ellinger and Koscharka<sup>15</sup> reported that in human milk the pigment is attached to a colloidal carrier, probably albumin.

More recently Karrer<sup>16</sup> and Kuhn<sup>17</sup> almost simultaneously accomplished the synthesis of riboflavin, and Gyorgy<sup>18</sup> showed that the biologic activity of the synthetic product is identical with that of the naturally occurring form. Its activity is the same, whether administered orally or intraperitoneally.<sup>19</sup>

#### RIBOFLAVIN AND CELL RESPIRATION

Various physiologic roles have been ascribed to riboflavin, but the only one concerning which there is no dispute is that it has some function in the oxidation processes of the cell. Our knowledge of these reactions is chiefly due to Warburg and Christian. It is impossible in this paper to give an adequate review of their researches, but they<sup>20</sup> isolated a yellow oxidation enzyme from bottom yeast, which was of a new type, as shown by the fact that it is not inhibited by carbon monoxide or by hydrocyanic acid. The active group of the enzyme, the pigment portion, is bound to protein and is easily detached.<sup>21</sup> This protein-free pigment is yellow, with a green fluorescence, and according to Warburg and Christian it has no enzymic activity.

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8 Richardson and Hogan. Bocher.

9 Blyth, A. W. The Composition of Cow's Milk in Health and Disease. J. Chem. Soc. London 35: 530. 1879.

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15 Ellinger, P. and Koscharka, W. The Lyochromes. A New Group of Animal Pigments. Nature 133: 553. 1934.

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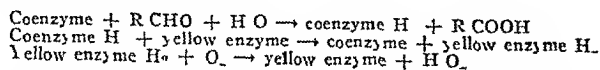
18 Gyorgy, Paul. Ueber die Wachstumswirkung synthetischer Flavinpräparate. Ztschr. f. Vitaminforsch. 4: 223 (July) 1935.

19 Gyorgy, Paul. Growth Promoting Activity of Lactoflavin Administered Orally and Parenterally. Proc. Soc. Exper. Biol. & Med. 35: 207 (Oct.) 1936.

20 Warburg, Otto and Christian, Walter. Ueber ein neues Oxydationsferment und ein Absorptionspektrum. Biochem. Ztschr. 251: 438 (Oct. 24) 1932.

21 Warburg, Otto and Christian, Walter. Ueber das neue Oxydationsferment. Naturwissenschaften 20: 980. 1932.

In studies of the properties of the yellow enzyme, Robison's hexose-monophosphate ester was used as the substrate. It developed though that in the oxidation of the ester two other catalytic agents are required. These are a second enzyme (dehydrogenase or intermediary enzyme) which is colorless, and a coenzyme. The reactions of this type of respiration have been summarized<sup>22</sup> as follows:



The entire system, then, that oxidizes hexose-phosphoric acid to phosphohexonic acid consists of a dehydrogenase (or intermediary enzyme), a coenzyme, the yellow oxidation enzyme and molecular oxygen.

Important details additional to our knowledge of the yellow oxidation enzyme were added by Theorell.<sup>23</sup> The enzyme was purified and found to have a nitrogen content of 15.5 per cent. A salt-free solution was then dialyzed against dilute hydrochloric acid and thus broken into two component parts, a protein and a fluorescent pigment, neither of which was able to transfer oxygen. They could be recombined, however, and the combination exerted normal enzymic activity. This protein fraction is specific and cannot be replaced by other native proteins such as globin. Theorell succeeded in isolating the prosthetic group of Warburg's yellow enzyme, which was identified as flavin phosphate. That the prosthetic group of yellow enzyme is a phosphoric acid ester is of considerable physiologic significance. It is true that free riboflavin may combine with the colloidal carrier to form an enzyme,<sup>24</sup> but this is probably of little quantitative significance.

A somewhat different approach to the physiology of riboflavin is due to the observations of Banga and Szent-Gyorgyi.<sup>25</sup> They used the heart muscle of swine and prepared a concentrate of "respiration-coferment." This concentrate also contained a golden yellow pigment, which they named "cytoflav." The absorption spectrum<sup>26</sup> of cytoflav showed that it has some structural similarity to Warburg's yellow enzyme, and it was shown by Kuhn and Rudy<sup>27</sup> that cytoflav is the phosphoric acid ester of riboflavin. It is significant that a glycerol extract of the small intestine of rats in 0.01 molar phosphate solution will convert flavin quantitatively to the phosphoric acid ester.<sup>28</sup>

Presumably the necessity for including riboflavin in the diet is that it is an essential constituent of the yellow oxidation enzyme that cannot be synthesized by the animal cell. It is probable, then, that the vitamin activity of flavin is due to the fact that it forms an ester with phosphoric acid, and this ester combines with protein to form the yellow oxidation enzyme. Apparently, if no hemin substances are present, all of the cell respiration is accomplished by Warburg's yellow ferment. On the other hand, if iron compounds are present it may be that only a small part of cell respiration is due to this enzyme.

#### RIBOFLAVIN IN TUMOR TISSUE

As would be expected, the respiration of tumor cells has been given intensive study and a low concentration of vitamin B<sub>2</sub> (riboflavin) in carcinoma tissues has been reported.<sup>29</sup> Von Euler and Adler<sup>30</sup> found from 0.5 to 1 microgram of riboflavin per gram of fresh weight in the Roux sarcoma (chick) and from 0.025 to 0.5 microgram in the Jensen sarcoma (rat). Elliott, Benoy and Baker<sup>31</sup> studied two types of tumor tissue, the Philadelphia No. 1 rat sarcoma and the Walker No. 256 carcinoma. Of the various oxidative mechanisms studied, Elliott and his associates concluded that two and possibly three are not active in tumor tissue. They suggest that the low concentration of flavin may explain the failure of tumors to oxidize lactate or malate, though lack of enzymes or coenzymes would explain the failures equally well.

#### STORAGE AND EXCRETION OF RIBOFLAVIN

It has been reported<sup>32</sup> that the flavin content of organs cannot be much increased, even a tenfold increase in the amount of riboflavin consumed increased very slightly the amount of the yellow enzyme in the liver. On the other hand, the body guards its store of this substance and even in rats that die for lack of riboflavin the amount in the liver, kidney and heart is still about one third of the normal level. When flavin was added to the diet of depleted animals, growth started before the reserves in the organs were restored to the original amount.

When the diet is adequate riboflavin is a normal excretory product, and Koschura<sup>33</sup> isolated crystalline uroflavin from urine. The typical yellow color of urine, however, is due to a different compound. According to Vivanco<sup>34</sup> the total excretion of flavin in the urine and feces of a rat is from 3 to 5 micrograms daily, and the feces contain about twice the amount present in urine. Within fourteen days after total deprivation of vitamin B<sub>2</sub> no flavin was excreted in the urine and growth was suspended.

The most extensive study of riboflavin excretion by man was conducted by Emmerie,<sup>35</sup> who reported that the daily elimination in the urine of males is from 819 to 1,250 micrograms or from 30 to 50 micrograms per hour. However, if the consumption of riboflavin is greatly increased there is a corresponding increase in the amount eliminated. In a continuation of this investigation, Emmerie<sup>36</sup> states that the body seems to act as a reservoir for flavin. On a very low intake the excretion exceeds the intake and on a high intake the excretion lags behind. After thirteen days of flavin restriction the urinary excretion varied between 43 and 60 per cent of the normal amount. Roscoe<sup>36</sup> observed a similar train of events. With an increased intake

22 Warburg, Otto, Christian, Walter and Griese, Alfred. Wasserstoffübertragendes Co-Ferment seine Zusammensetzung und Wirkungsweise. *Biochem. Ztschr.* 282: 157 (Nov. 21) 1935.

23 Theorell, Hugo. Reindarstellung (Kristallisation) des gelben Atmungsfermentes und die reversible Spaltung desselben. *Biochem. Ztschr.* 155 (July 23) 1934. Reindarstellung der Wirkungsgruppe des gelben Ferments. *Ibid.* 275: 344 (Jan. 5) 1935.

24 Kuhn, Richard and Rudy, Hermann. Lactoflavin als Co-Ferment. *Wirkstoff und Träger. Ber. d. deutschen chem. Gesellsch.* 69: 2557 1936.

25 Banga, I. and Szent-Gyorgyi, A. Ueber Co-Fermente. *Wasserstoffdonatoren und Arsenvergiftung der Zellatmung. Biochem. Ztschr.* 246: 203 (March 15) 1932.

26 Laki, K. Ueber Cytoflav. *Biochem. Ztschr.* 266: 202 (Oct. 24) 1933.

27 Kuhn, Richard and Rudy, Hermann. Wachstumswirkung von Flavinphosphorsäuren. *Ztschr. f. physiol. Chem.* 239: 47 (Feb. 28) 1936.

28 Rudy, Hermann. Enzymatische Phosphorylierung des Lactoflavins. *Naturwissenschaften* 23: 286 1935.

29 Cyörgy, Paul, Kuhn, Richard and Wagner-Jauregg, Theodor. Verbreitung des Vitamins B im Tierkörper. *Ztschr. f. physiol. Chem.* 222: 21 (Feb. 5) 1934. von Euler, Hans and Adler, Frisch. Ueber das Vorkommen von Flavinen in tierischen Geweben. *Ztschr. f. physiol. Chem.* 222: 105 (March 6) 1934.

30 Elliott, K. A. C., Benoy, Marjorie P. and Baker, Zelma. The Metabolism of Lactic and Pyruvic Acids in Normal and Tumour Tissues. II. Rat Kidney and Transplantable Tumours. *Biochem. J.* 29: 193 (Aug.) 1935.

31 Kuhn, Richard, Kaltschmitt, Hans and Wagner-Jauregg, Theodor. Ueber den Flavinegehalt der Leber und Muskulatur von gesunden und B-avitaminotischen Ratten. *Ztschr. f. physiol. Chem.* 232: 36 (March 11) 1935.

32 Vivanco, Francisco. Zur Flavobilanz im Tierkörper. *Naturwissenschaften* 23: 306 1935. Kuhn, Kaltschmitt and Wagner-Jauregg. *Ibid.*

33 Koschura, W. Ueber Harnlyochrome. *Ztschr. f. physiol. Chem.* 232: 101 (March 25) 1935.

34 Emmerie, A. Determination and Excretion of Flavins in Normal Human Urine. *Nature* 138: 164 (July 25) 1936.

35 Emmerie, A. On the Relation Between Intake and Excretion of Flavins. *Acta brev. Neerlandica* 1937, No. 4.

36 Roscoe, Margaret H. The B Vitamins in Human Urine. *Physiol. Chem.* 30: 1053 (June) 1936.

there was both an increased retention and excretion. The rate of destruction of riboflavin by the body has not been reported, but the observations cited indicate that some destruction does occur. One might estimate from Emmerie's data that a man should receive from 2 to 3 mg of riboflavin daily.

#### OVERDOSAGE OF RIBOFLAVIN NOT TOXIC

Kuhn and Boulanger<sup>37</sup> reported that mice were not injured by doses of 340 mg of riboflavin per kilogram of body weight, roughly 1,000 times the daily requirement. If calculated on the same weight ratio, a man weighing 70 Kg would not be injured by ingesting 20 Gm of lactoflavin, the amount present in 20,000 liters of cow's milk.

#### RIBOFLAVIN INTAKE AND AMOUNT SECRETED IN MILK

The amount of vitamin G, either in cow's milk<sup>38</sup> or in human milk,<sup>39</sup> depends somewhat on the amount consumed, but precise data on this point are not available. It has been estimated<sup>40</sup> that a cow may consume 50 mg of riboflavin in one day and secrete 10 liters of milk containing 1 mg of riboflavin per liter, thus giving a recovery of 20 per cent. Each of these quantities is subject to revision, but they are probably of the correct order of magnitude.

Yellow fluorescence does not appear in the milk of wetnurses on a vegetarian diet<sup>41</sup> but is quite evident if the intake of riboflavin is increased. Muller<sup>42</sup> observed that after a diet of 250 Gm of ox liver, which contained approximately 4 mg of riboflavin, the yellow fluorescence approached that of cow's milk, provided the total milk production was low. If large amounts of milk were secreted, the flavin was correspondingly diluted. Muller also gave intramuscular injections of riboflavin and stated that 0.75 mg of riboflavin was the smallest amount that would give a discernible yellow fluorescence. The amount of vegetables, even of spinach, that would contain this amount is far too great to be consumed in a reasonable time. Muller reported that children who received milk with some yellow fluorescence did not grow more rapidly than those who consumed milk with blue fluorescence, but the source of the fluorescence was not determined in either case. Because a riboflavin avitaminosis in man has not been reported, it is not known definitely that an increase in the riboflavin content of milk would be of clinical significance.

#### RIBOFLAVIN CONTENT OF THE EYE

Von Euler and Adler<sup>43</sup> reported that the retina of fish eyes contains flavin and suggested that this flavin is of special significance when the light is not intense. The pigment may make it possible to use shorter waves by changing them into green light, for which the eye

has a maximum sensitivity. They had an opportunity to examine a human eye and obtained from it between 0.2 and 0.4 microgram of riboflavin. A codfish eye contains about 50 micrograms, or more than 100 times as much.

#### RIBOFLAVIN DEFICIENCY AND CATARACT

Cataract in rats is a consequence of vitamin G deficiency,<sup>44</sup> though some observers report that the condition occurs only in rats that are deprived of the vitamin at an early age.<sup>45</sup> Day and Langston<sup>46</sup> observed that a conjunctivitis and keratitis usually developed at 7 or 8 weeks, followed by a dulness of the eyeball and finally a definite opacity. The incidence of the cataract was only a little less than 100 per cent. Cataract was also produced in mice, chickens and monkeys.<sup>47</sup> Definite evidence that riboflavin is the vitamin G that prevents this type of cataract has been provided by Day, Darby and Langston.<sup>48</sup>

Bourne and Pyke<sup>49</sup> repeated Day's work, with a maximum incidence of cataract of 31 per cent. Gyorgy<sup>50</sup> states that cataract was not observed, even though a large number of animals was observed, and in the experience of Richardson and Hogan<sup>2</sup> this abnormality was rare. The reason for the discrepancies is not apparent, but there is no reason to doubt that under suitable experimental conditions cataract in rats is caused by a deficiency of flavin.

Curiously enough, Mitchell and Dodge<sup>51</sup> have reported that cataract in rats is a consequence of a high lactose diet, but according to Morgan and Cook<sup>52</sup> the lactose type of dermatitis is not healed by riboflavin.

#### RIBOFLAVIN, CANINE BLACKTONGUE AND HUMAN PELLAGRA

The hypothesis that blacktongue in dogs is due to a deficiency of vitamin G has not been sustained,<sup>53</sup> and more recent studies<sup>54</sup> show that this disease is not prevented by riboflavin.

- 44 Day P L, Langston W C and O'Brien C S. Cataract and Other Ocular Changes in Vitamin G Deficiency. *Am J Ophth* 14 1105 (Oct) 1931.
- 45 O'Brien C S. Experimental Cataract in Vitamin G Deficiency. *Arch Ophth* 8 880 (Dec) 1932. Yudkin A M. Ocular Disturbances Produced in Experimental Animals by Dietary Changes. *J A M A* 101 921 (Sept 16) 1933.
- 46 Day P L and Langston W C. Further Experiments with Cataract in Albino Rats Resulting from the Withdrawal of Vitamin G (B) from the Diet. *J Nutrition* 7 97 (Jan) 1934.
- 47 Day P L, Langston W C and Cosgrove K W. The Appearance of Cataract and Dermatitis in Experimental Animals Given Vitamin G Deficient Diets Containing Casein and Egg Albumin. *J Nutrition* Proc 7 12 (May) 1934. Day P L. Vitamin G Deficiency. *Am J Pub Health* 24 603 (June) 1934.
- 48 Day P L, Darby W J and Langston W C. The Identity of Flavin with the Cataract Preventive Factor. *J Nutrition* 13 389 (April) 1937.
- 49 Bourne Margherita C and Pyke W A. The Occurrence of Cataract in Rats Fed on Diets Deficient in Vitamin B. *Biochem J* 29 1865 (Aug) 1935.
- 50 Gyorgy Paul. Investigations on the Vitamin B Complex. I. The Differentiation of Lactoflavin and the Rat Antipellagra Factor. *Biochem J* 29 741 (March) 1935.
- 51 Mitchell Helen S and Dodge W M. Cataract in Rats Fed on High Lactose Rations. *J Nutrition* 9 37 (Jan) 1935.
- 52 Morgan Agnes F and Cook Bessie B. Cataract and Dermatitis Producing Nutritional Factors. *Proc Soc Exper Biol & Med* 34 281 (March) 1936.
- 53 Cowgill G R, Zimmerman H M and Burack Ethel. Studies of Vitamin G (B) Deficiency in Dogs. Preliminary Communication. *Am J Physiol* 109 24 (July) 1934. Zimmerman H M and Burack Ethel. Studies on the Nervous System in Deficiency Diseases. II. Lesions Produced in the Dog by Diets Lacking the Water Soluble Heat Stable Vitamin B (G). *J Exper Med* 59 21 (Jan) 1934. Zimmerman H M, Cowgill G R, Bunnell W W and Dann M. Studies on the Nervous System in Deficiency Diseases. Experimental Black Tongue. *Am J Physiol* 109 440 (Sept) 1934. Rhoads C P and Miller D K. Vitamin B (G) and Canine Blacktongue. *Science* 81 159 (Feb 8) 1932.
- 54 Birch T W, Gyorgy Paul and Harris L J. The Vitamin B Complex. Differentiation of the Antiblacktongue and the P P Factors from Lactoflavin and Vitamin B<sub>6</sub> (So-Called Rat Pellagra Factor). Parts I IV. *Biochem J* 29 2830 (Dec) 1935. Koehn C J and Elvehjem C A. Studies on Vitamin G (B) and Its Relation to Canine Black Tongue. *J Nutrition* 11 67 (Jan) 1936.
- 37 Kuhn Richard and Boulanger Paul. Ueber die Giftigkeit der Flavine. *Ztschr f physiol Chem* 241 233 (July 17) 1936.
- 38 Hunt C H and Krauss W E. The Influence of the Ration of the Cow upon the Vitamin B and Vitamin G Content of Milk. *J Biol Chem* 92 631 (Aug) 1931.
- 39 Donelson Eva G and Macy Icie G. Human Milk Studies. II. The Vitamin B and Vitamin G Content Before and During Maternal Consumption of Yeast. *J Nutrition* 7 231 (Feb) 1934.
- 40 Kuhn Richard, Wagner Jauregg Theodor and Kaltschmitt Hans. Ueber die Verbreitung der Flavine im Pflanzenreich. *Ber d deutschen chem Gesellsch* 67 1452 1934.
- 41 Kayser M E. Welcher Leberbestandteil geht in die Frauenmilch uher? *Deutsche med Wchnschr* 63 136 (Jan 22) 1937.
- 42 Muller R. Beobachten uher den Lactoflavinegehalt der Frauenmilch und seine Beeinflussung durch die Ernahrung. *Klin Wchnschr* 16 807 (June 5) 1937.
- 43 Karrer P, von Euler Hans and Schopp K. Flavin aus Fischaugen. *Ark. kemi Min. Geol* 11B 1935 No 54. von Euler Hans and Adler Erich. Ueber Flavin und einen blaufluoreszierenden Stoff in der Netzhaut der Fischaugen. *Ztschr f physiol Chem* 228 1 (Oct 3) 1934. von Euler and Adler.



The earlier work of Cowgill and his collaborators<sup>55</sup> on neurologic manifestations in vitamin G ( $B_2$ ) deficiency was repeated with some modifications, with about the same results. The neurologic changes are described as (a) marked degeneration of the medullary sheaths and axis cylinders of the peripheral nerves, (b) fairly common degeneration of the medullary sheaths of the posterior nerve roots, with less frequent involvement of the anterior roots of the cord, and (c) degeneration of the medullary sheaths and axis cylinders of the posterior columns of the spinal cord.

The authors did not show that riboflavin would prevent the lesions they ascribed to a deficiency of G ( $B_2$ ) but in a personal communication dated June 30, 1937, Dr Cowgill stated that they were investigating that specific point, and that up to that date riboflavin afforded the same degree of protection against the vitamin G deficiency syndrome as did the liver extract previously used. Rats on diets similar to those employed by Zimmerman and Burack do not develop degeneration of the myelin sheaths in the spinal cord or in peripheral nerves, so dogs and rats seem to respond differently to this deficiency.<sup>56</sup> Wobach's attitude is apparently expressed in the statement that "the demonstrable nervous lesions of all the deficiency diseases are secondary effects" and "no one vitamin is concerned in the maintenance of myelin."

Sebrell, Hunt and Onstott<sup>57</sup> confirmed the fact that riboflavin has no therapeutic value in the treatment of blacktongue. It was demonstrated by Richardson and Hogan<sup>2</sup> that Goldberger's<sup>58</sup> blacktongue producing diet contains suboptimal amounts of flavin, and Sebrell, Onstott and Hunt<sup>59</sup> observed that this deficiency may be significant. Thus one dog that had been healed of blacktongue with the filtrate factor collapsed 182 days from the beginning of treatment. During one day 8 mg of lactoflavin was injected intramuscularly and within twelve hours after the first injection the animal was normal. Evidently the dog requires flavin, and a ration could be compounded of natural foodstuffs which is deficient in this substance.

Dann<sup>60</sup> has reported that riboflavin is ineffective in the treatment of human pellagra. Fouts, Lepkovsky, Helmer and Jukes<sup>61</sup> treated two pellagrins with the filtrate factor of Lepkovsky, Jukes and Krause,<sup>62</sup> and reported that they were healed. This filtrate factor was prepared from an extract from which lactoflavin had been removed.

Evidently a deficiency of riboflavin is not the primary cause of either pellagra or blacktongue, but it is entirely possible that such a deficiency may be a complication. The diets that are commonly consumed in pellagrous districts are poor sources of riboflavin.

#### CHICK PELLAGRA

Chicks also develop "pellagra" symptoms<sup>63</sup> when reared on rations that have been subjected to prolonged dry heat, but the symptoms are not due to a deficiency of flavin.<sup>64</sup>

#### RIBOFLAVIN AND PERNICIOUS ANEMIA

Preliminary observations of Strauss and Castle<sup>65</sup> on the factor that prevents pernicious anemia led them to suggest that the extrinsic factor of pernicious anemia is vitamin  $B_{12}$  (G) or is closely related to it, but practically all of the more recent reports are negative. Will and Naish<sup>66</sup> used an extract of egg white as a source of vitamin G and incubated it with normal gastric juice and supplied it to a patient with pernicious anemia, but the outcome was negative. It was shown that a year that egg white contains riboflavin, therefore this newly discovered compound could not be the extrinsic factor. This view has been confirmed by numerous other workers.<sup>67</sup>

Stare and Thompson<sup>68</sup> administered riboflavin intramuscularly to five patients with pernicious anemia, with no effect. Ashford, Klein and Wilkinson<sup>69</sup> incubated riboflavin with normal gastric juice, and also with the press juice of hog's stomach, but the hematopoietic activity of the flavin was not increased by the treatment. According to these investigators riboflavin is not the extrinsic factor and is not the antipernicious anemia principle.

#### RIBOFLAVIN, ADRENAL CORTEX EXTRACT AND IODOACETIC ACID POISONING

Laszt and Verzar<sup>70</sup> supplied to rats a complete diet, to which had been added 0.02 per cent iodoacetic acid. This was consumed readily, but growth was retarded and after a time the rats became apathetic, there were alterations in the bones, skin and blood, and the adrenals were hypertrophic. If the rats were given 20 micrograms daily of riboflavin-phosphoric acid growth was restored, but riboflavin itself was ineffective. If, instead of the riboflavin ester, the rats received injections of the adrenal cortex extract, growth was again resumed. From these observations the authors concluded that riboflavin must be phosphorylated before it can exercise its normal physiologic function, and that adrenal cortex extract is essential for the phosphorylation process. The toxicity of iodoacetic acid is largely due to the fact that it inhibits this ester formation.

55 Zimmerman H M, Cowgill G R and Fox J C Jr. Neurologic Manifestations in Vitamin G ( $B_2$ ) Deficiency. An Experimental Study in Dogs. Arch Neurol & Psychiat 37 286 (Feb) 1937.

56 Wobach S B. The Pathologic Changes Resulting from Vitamin Deficiency. J A M A 108 7 (Jan 2) 1937.

57 Sebrell W H, Hunt D J and Onstott R H. Lactoflavin in the Treatment of Black Tongue. Pub Health Rep 52 235 (Feb 26) 1937.

58 Goldberger Joseph and Wheeler G A. Experimental Black Tongue of Dogs and Its Relation to Pellagra. Pub Health Rep 43 172 (Jan 27) 1928.

59 Sebrell W H, Onstott R H and Hunt D J. The Treatment of Blacktongue with a Preparation Containing the 'Filtrate Factor' and Evidence of Riboflavin Deficiency in Dogs. Pub Health Rep 52 427 (April 9) 1937.

60 Dann W J. The Vitamin G Complex. I. The Nonidentity of Rat Dermatitis Due to Vitamin  $B_{12}$  Deficiency and the Dermatitis of Human Pellagra. J Nutrition 11 431 (May) 1936.

61 Fouts P J, Lepkovsky Samuel, Helmer O M and Jukes T H. Successful Treatment of Human Pellagra with the Filtrate Factor. Proc. Soc. Exper. Biol. & Med 35 245 (Nov) 1936.

62 Lepkovsky Samuel, Jukes T H and Krause Myrtice E. The Multiple Nature of the Third Factor of the Vitamin B Complex. J Biol Chem 115 557 (Sept) 1936.

63 Kline O L, Keen J A, Elvehjem C A and Hart E B. The Use of the Chick in Vitamin  $B_1$  and B Studies. J Biol Chem 99 295 (Dec) 1932. Lepkovsky Samuel and Jukes T H. The Vitamin G Requirement of the Chick. Ibid 111 119 (Sept) 1935. Ansbacher S, Supplee G C and Bender R C. Pellagra like Syndrome in Chicks. J Nutrition 11 529 (June) 1936.

64 Elvehjem C A and Koehn C J. Studies on Vitamin B ( $G_1$ ). The Nonidentity of Vitamin B and Flavins. J Biol Chem 108 107 (March) 1935.

65 Strauss M B and Castle W B. The Nature of the Extrinsic Factor of the Deficiency State in Pernicious Anemia and in Related Macrocytic Anemias. New England J Med 207 55 (July 14) 1937.

66 Willis Lucy and Naish Alice A. Case of Pernicious Anemia Treated with Vitamin B from Egg White. Lancet 1 1286 (June 1) 1933.

67 Lassen H C A and Lassen H K. Yeast or Vitamin  $B_{12}$ ? 'Extrinsic Factor' in Treatment of Pernicious Anemia. Am J Med 188 461 (Oct) 1934. Brand Erwin, West Randolph and Stuckey C J. Vitamin G Potency of Purified Liver Preparations. Proc Soc Exper Biol & Med 30 1382 (June) 1933. Miller D K and Rhead C P. The Presence in Egg White and in a Rice Polishing Concentrate Low in Vitamin B ( $G_1$ ) of an Anti-Pernicious Anemia Principle. New England J Med 211 921 (Nov 15) 1934.

68 Stare F J and Thompson L D. Hepatoflavin and Pernicious Anemia. Proc Soc Exper Biol & Med 33 64 (Oct) 1933.

69 Ashford C A, Klein Louis and Wilkinson J F. The Nonidentity of Lactoflavin and the Extrinsic Factor in Pernicious Anemia. Biochem J 30 218 (Feb) 1936.

70 Laszt L and Verzar F. Hemmung des Wachstums der Jodessigsäure und antagonistische Beeinflussung durch Vitamin B. Nebennierenrinde. Hermon Arch f d ges Physiol (Hauger) 236 693 (Dec 23) 1935.

They published additional evidence<sup>71</sup> on this point and suggest that there is a similarity between iodoacetic acid poisoning and the Gee-Herter syndrome (celiac disease)<sup>72</sup> They believe that in both cases the formation of riboflavin phosphoric acid is inhibited Rudy<sup>73</sup> also has studied iodoacetic acid poisoning of rats, but he observed that simple riboflavin is as effective in restoring growth as the phosphoric acid ester The explanation of this discrepancy is not apparent

Adrenalectomy interferes with fat absorption, but Laszt and Verzar<sup>74</sup> report that absorption is restored to the normal level by administering either adrenal cortex extract or riboflavin phosphoric acid

#### RIBOFLAVIN IN AVIAN NUTRITION

Lepkovsky and Jukes<sup>75</sup> reported that chicks which received a basal diet which was deficient in flavin grew slowly, became weak and emaciated and developed diarrhea but did not develop dermatitis Controls that received riboflavin were normal Turkeys did not react in exactly the same way After the eighth day a dermatitis developed which resembled the deficiency disease of chicks first described by Ringrose, Norris and Heuser<sup>76</sup> If the basal diet was supplemented with riboflavin in the proportion of 2 mg of the vitamin per hundred grams of the diet, dermatitis did not develop, there was no mortality and growth was rapid There was no mention of leg weakness in either chicks or turkeys

Bethke, Record and Wilder<sup>77</sup> provided baby chicks with a basal ration that was deficient in flavin and observed that it caused a characteristic leg disorder as well as a subnormal rate of growth When the basal diet was supplemented with 40 micrograms of riboflavin every other day the weights were normal and there were no leg disorders The ration used by Bethke and his collaborators was not strikingly different from diet 60 supplied by Lepkovsky and Jukes to turkeys, so it is not clear why the former reported a high incidence of leg weakness and the latter reported none at all

The amount of vitamin G in the ration of laying hens determines, within limits, the amount in the eggs,<sup>78</sup> and this amount in turn determines the hatchability of the eggs<sup>79</sup>

#### MISCELLANEOUS

When rats receive diets that are deficient in vitamin G the oxygen uptake of skin cells is lowered<sup>80</sup> The percentage of dry matter and of total fat in the tissues

is markedly reduced, and that of water correspondingly increased, but these symptoms may be due merely to inanition<sup>81</sup>

If the heart is perfused under low oxygen pressure the muscular contractions are weakened<sup>82</sup> A normal heart beat is restored either by physiologic oxygen pressure or by adding a minute quantity of riboflavin to the perfusion medium

It has been reported<sup>83</sup> that strenuous muscular exercise may cause a hypertrophy of the adrenal glands of rats, amounting to 82 per cent The hypertrophy was prevented by feeding large amounts of autoclaved yeast but not by administering riboflavin<sup>84</sup> It was suggested that the activity of yeast was due to its content of vitamin B<sub>6</sub>

A deficiency of vitamin G has little or no effect on the concentration of tissue enzymes<sup>85</sup>

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION

PAUL NICHOLAS LEECH Secretary

**PROCAINE-ABBOTT** (See New and Nonofficial Remedies, 1937, p 69)

The following dosage forms have been accepted

*Ampoules Ephedrine Hydrochloride 2½% and Procaine Hydrochloride 1% 2 cc* Ephedrine hydrochloride 2½ per cent and procaine hydrochloride 1 per cent in chemically pure water to make 2 cc

*Ampoules Ephedrine Hydrochloride 5% and Procaine Hydrochloride 1% 1 cc* Ephedrine hydrochloride 5 per cent and procaine hydrochloride 1 per cent in chemically pure water to make 1 cc

**ADRENALIN** (See New and Nonofficial Remedies, 1937, p 222)

*Solution of Adrenalin Chloride 1:100 5 cc vials*—A solution containing 1 part adrenalin (as adrenalin chloride) in 100 parts of physiological solution of sodium chloride preserved by the addition of 0.5 per cent of chlorotone and not more than 0.1 per cent of sodium bisulfite

*Actions and Uses*—Injections of solutions of epinephrine (1:1000) are known to be useful in the treatment of severe attacks of bronchial asthma Recent evidence indicates that the oral inhalation of a solution of epinephrine ten times stronger than those used by hypodermic injection gives relief in acute attacks of bronchial asthma when other measures fail The physician should familiarize himself with the procedure before employing it in the treatment of his patients It is absolutely essential that such treatment be instituted under the supervision of the physician and the patient warned of the dangers of using a solution of such strength carelessly It is also necessary that the atomizer or nebulizer which is used in the administration of such solutions produce a fine mistlike spray free from minute droplets Every precaution must be taken to avoid confusion between this solution (1:100) and the official 1:1000 solution of epinephrine hydrochloride since the 1:100 solution is not suitable for hypodermic use and should never be employed in that manner

*Dosage*—A definite dosage cannot be stated for the use of this preparation It is obviously essential that the amounts used not exceed the minimal amount which will give effective relief It is best to start with a single compression of the bulb of the atomizer or nebulizer until it is determined what dosage is adequate and safe Its use should not be repeated until several minutes have passed so that the full effect of the inhalation can be observed before additional amounts are used

**SULFANILAMIDE-P D & CO** (See THE JOURNAL, Nov 6, 1937, p 1543)

The following dosage form has been accepted

*Sulfanilamide Tablets 7½ grains*

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# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 9, 1938

## ELEVEN DEATHS FROM A CANCER TREATMENT

The complete story of the tragedy in Orlando, Fla., reported in a special article<sup>1</sup> in this issue of THE JOURNAL, cannot yet be written. Enough facts are already available, however, to warrant a reemphasis of the warning that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has made repeatedly against the use in medical practice of unstandardized, unestablished and uncontrolled methods of treatment.

In October 1935, when the "ensol" treatment was launched from Kingston, Ont., with what appeared to be carefully planned publicity in the newspapers, THE JOURNAL issued a warning to the effect that the product was being developed under uncontrolled conditions and that its exploitation would inevitably lead to grief for those concerned. Now almost three years have passed. Evidence resulting from experiments on animals indicates that the method is without established value. The clinical evidence has been uncontrolled. There is really no good clinical evidence that this method has any beneficial effect in the treatment of cancer. Nevertheless a considerable number of doctors in various parts of the United States have used a product of this type in the treatment of cancer and it is obvious that one at least has come to grief.

As we go to press, it seems that the Biochemical Research Foundation of the Franklin Institute of Philadelphia prepared the product called R or Rex, which caused the deaths of the patients in Orlando, Fla. It seems likely that batch 152 was prepared on a Friday, some of it permitted to stand over Saturday and Sunday, and then sterilized on Monday. If the tetanus organism was present in the product it would have had two days in which to develop the toxin, so that when the product was sterilized on Monday a sufficient amount of tetanus toxin was present to cause death. These possibilities remain to be confirmed by more evidence—but certainly enough evidence is available to warrant the suggestion.

At present there are being exploited to the American people a half dozen or more treatments of cancer that

are in no way established as actually of value in the treatment of that condition. Time is the great test of cancer cures. Many of these methods of treatment have already been before the public long enough to indicate that they are absolutely worthless. Enough is now known about the nature of cancer to indicate that the value of a cancer remedy cannot be established by sending it at random to physicians scattered all over the country, who use it in practice for a fee. The development, exploitation and promotion of "ensol" and of its progeny "R" have been unscientific, unethical and unwarranted. Some means must be found to protect the people against their use as guinea pigs in this kind of experimentation.

## ENDOCREME—A COSMETIC WITH A MENACE

In current periodicals, especially those directed to women, there have been appearing the advertisements for a product called Endocrine. In some of the latest copy which, incidentally, bears the approval of the Good Housekeeping Bureau, appear the following statements:

Endocrine contains a counterpart of the natural bodily element which helps account for that pink freshness of a youthful skin. This substance is known to the medical world as es-tra-di-ol, and Endocrine is the only cosmetic which contains es-tra-di-ol. It helps replenish the supply of the very substance which your skin may lack.

Endocrine, therefore, is more than "just a face cream." It is an active, vital cosmetic which begins its work with the substructure of the skin. In later life, the skin tends to fall into lines and wrinkles because the tissues underneath the skin sag. When Endocrine firms and tones these underlying tissues, the skin is smoothed out again, pores decrease in size and lines begin to disappear.

Not only is the product widely advertised, it is also sold over the counter in many leading department stores, drug stores and beauty shops. For more than a year this product, manufactured by the Hirst Laboratories, Inc., of New York, has been offered to the public without a word of warning that it may be a potential menace to health and life. Now, on the basis of available evidence, which the manufacturer should have had before the product was sold openly to the public, THE JOURNAL is warranted in warning users of this product that its indiscriminate use may lead to dangerous consequences, that it possesses the potentiality of bringing about serious changes in the genital and reproductive organs of women, that it may induce changes in the breasts, and that there is, in addition, to possible disorganization of the menstrual cycle, the potentiality of the production of cancer.

Endocrine is claimed to contain 0.625 mg of estradiol per ounce. The purchaser of this preparation is told to apply one-half teaspoonful to the face, neck, arms and hands every night and is cautioned against omitting treatment for a single night if the best results are to be obtained. In one of the early advertisements

<sup>1</sup> Eleven Deaths from a Cancer Treatment this issue p 1183

for this product, the statement is made "There is no danger of overapplication. The skin absorbs only as much as it needs of the vitalizing hormone contained exclusively in Endocrine, the only hormone of its type which has been scientifically proved to be absorbed by the skin." Of course, it has been known for some time that estrogens may be absorbed from the skin and may thus exert systemic effects<sup>1</sup>. Nevertheless, it is claimed that Endocrine acts on the skin alone and has no effect on internal organs.

From many sources now comes scientific evidence indicating the potentiality for serious harm that lies in the persistent use of the product called Endocrine. At the University of Chicago Prof. Carl R. Moore<sup>2</sup> has been making some experiments which are to be presented before a national scientific organization within a few weeks but which have been made immediately available to *THE JOURNAL* so that this warning might be issued. Samples were purchased from a leading department store in the city of Chicago. The product is available in department stores and drug stores everywhere at the price of \$3.50 for a two ounce jar.

One-half teaspoonful of the ointment was found to weigh about 1.82 Gm., on the basis of the claimed content of estradiol, this quantity of cream represents approximately 0.04 mg. of estradiol. About one-fifth this dose, 0.372 Gm. of Endocrine (0.0082 mg. of estradiol), was rubbed daily on the back of the neck (previously shaved) of spayed female rats, young normal male rats and normal male guinea pigs for periods of from two to twenty-one days. The Chicago investigators found that this amount of Endocrine (1) induces an estrous reaction in castrated female rats in forty-eight hours, (2) maintains normal uterine weight in such rats, (3) induces growth of mammary glands in normal male guinea pigs, and (4) exerts profound degenerative changes in the testes of normal young rats. They believe that continued application of Endocrine to large areas of skin in normal women may have serious consequences in possible disorganization of the menstrual cycle.

Inunction of an ointment containing a potent steroid may be even more effective in producing systemic effects than parenteral injection, indeed, Moore and his associates have found the former to be the more effective method of administering androgens (closely related chemically to the estrogens) owing apparently to slower absorption and hence better utilization. Zondek<sup>3c</sup> found that a given amount of estrogen inunction into the skin was as effective in the production of mammary growth as the same amount injected subcutaneously. However, to produce an estrous effect seven times as much was necessary by cutaneous administration. Thus, it may be seen that daily

inunction of Endocrine may actually lead to as great a systemic effect, at least with respect to certain organs, as parenteral injection of an equal amount of estrogen.

While the dosage of estradiol used in the experiments cited represents a much larger amount per unit of body weight than that recommended for the human being, one must consider both the enormously larger surface area to which the ointment is applied in women as well as the much longer period of administration. Further, the known proliferative effects of estrogens on tissues with which they come into direct contact in high concentration leads to apprehension as to the probable result should Endocrine be applied regularly to a potentially neoplastic pigmented mole such as occurs frequently in the human skin.

Lesions of various types and in various organs have been produced in animals through the use of large doses of estrogen over long periods<sup>3</sup>. Among these carcinoma of the breast appears to be the most common, but other tissues may also be affected. Two years ago, Gardner and his co-workers<sup>4</sup> reported the production of sarcoma at the site of injection of an estrogenic preparation and recently these investigators<sup>5</sup> have produced carcinoma of the cervix in mice. In an article in this issue of *THE JOURNAL* Drs. Gardner, Allen, Smith and Strong in the department of anatomy of Yale University at New Haven found that a tumor of the cervix of the uterus of large size developed in a mouse receiving estradiol and was successfully transplanted into male and female mice of the same inbred strain. They believe also that smaller growths observed in eighteen other mice which had received this substance are probably precancerous growths or early cancers. Incidentally, the injection of the oil used as a solvent for the estradiol benzoate did not produce any such changes.

Shortly after Endocrine was first launched, a periodical called *Drug and Cosmetic Industry*<sup>6</sup> itself issued the following warning:

We have published little or nothing on hormones in cosmetics since we are, at least for the present, opposed to the use of these materials in cosmetics until knowledge is fuller these products should not be administered indiscriminately and without supervision.

Apparently, even experts in the cosmetic industry had misgivings!

Estrogen, as has already been well established, has definite uses in medicine when properly employed under controlled conditions. Now evidence becomes available that this endocrine principle, like all other potent endocrine substances, is a two-edged sword capable of remarkable achievements when properly used and

3 The Role of Estrogenic Substance in Tumor Formation editorial J. A. M. A. 106: 1093 (March 28) 1936.

4 Gardner W. W., Smith G. M., Strong L. C. and Allen Edgar. Development of Sarcoma in Male Mice Receiving Estrogenic Hormones. Arch. Path. 21: 504 (April) 1936.

5 Gardner W. W., Allen Edgar, Smith G. M. and Strong L. C. Carcinoma of the Cervix of Mice Receiving Estrogens. This issue p. 1182.

6 Hormone Creams. Reader's questions. Drug & Cosmetic Industry 41: 706 (Nov.) 1937.

1 (a) Zondek Bernard. Folliculin Klin. Wchnschr. 8: 2229 (Nov. 26) 1929. (b) Hormone des Ovariums und des Hypophysenvorderlappens ed. 2. Vienna: Julius Springer 1935. (c) Perkutane Follikelhormontherapie. Schweiz. med. Wchnschr. 65: 1168 (Dec. 7) 1935.

2 Moore C. R., Lamar Jule K. and Beck Naomi. Unpublished observations made available through the courtesy of Dr. Moore.

dangerous when carelessly employed. The continued reckless and indiscriminate use of this substance in a cosmetic cream is certainly unwarranted until it has been proved beyond the shadow of a doubt that the menace clearly established in animals does not likewise prevail in human beings.

### CYSTINE AND METHIONINE

Man's knowledge of sulfur dates back to the time of the ancients. The essential nature of this element and its metabolic significance constitute an important chapter in the history of physiologic chemistry. Most of the sulfur that is concerned with metabolism enters the body in organic combination, largely as protein. Although cystine, the first sulfur-containing amino acid known to exist in proteins, was discovered by Wollaston in 1810 in a renal calculus, its presence in protein was not demonstrated until eighty years later. In 1915 Osborne and Mendel reported the results of experiments which are interpreted to mean that cystine is an indispensable amino acid, i. e., it must be provided in the food if physiologic well being is to be supported.

In 1921 Mueller<sup>1</sup> discovered a second sulfur-containing amino acid in the digestion products from casein, this compound was subsequently named methionine. It is a methiol derivative of butyric acid and essentially a homologue of cystine. Eleven years after the discovery of methionine, Jackson and Block<sup>2</sup> showed that an experimental purified ration, too poor in cystine to permit normal growth in young rats, could be made adequate in this respect by the addition of methionine. This demonstration of apparent interconvertibility of cystine and methionine raised the question of the essential nature of both these amino acids in nutrition. Later, on the basis of studies of the behavior of the sulfur-containing amino acids in a cystinuric patient, Brand and his associates<sup>3</sup> questioned the indispensability of cystine while placing methionine in this category.

Recently new experimental devices have been employed in studies designed to test further the problem of the nutritive significance of cystine and methionine. Employing a highly purified experimental diet containing practically all the nitrogen in the form of a known mixture of amino acids, Womack, Kemmerer and Rose<sup>4</sup> proved that increase in body weight of young rats was secured when methionine and cystine together or when methionine alone was present but that failure resulted with cystine alone. Again, White and Beach<sup>5</sup> using arachin, a protein from the peanut which

contains adequate cystine but is deficient in methionine, have demonstrated that under these conditions methionine, but not cystine, will support progressive increase in body weight of experimental animals. Although these studies show that methionine is indispensable apart from its relationship to cystine, it appears from the available evidence that the latter can serve to stimulate growth when methionine is present in sub-optimal quantities.

The foregoing conclusion, of fundamental significance in the biochemistry of proteins, is a triumph of skillful and critical work in the fields of nutrition and organic chemistry. Although there doubtless are other as yet unidentified sulfur-containing components of the protein molecule,<sup>6</sup> the recent advances in the knowledge of the sulfur-containing amino acids of proteins have served to further the establishment of protein metabolism on a simpler and more rational basis.

### Current Comment

#### CARBON MONOXIDE AND THE ABILITY TO DRIVE AUTOMOBILES

The interiors of about 5 per cent of automobiles tested on the highways contain sufficiently high concentrations of carbon monoxide to produce symptoms such as dizziness or collapse. Forbes and his colleagues<sup>1</sup> devised two sets of experiments to test the driving ability of persons subjected to an atmosphere containing enough carbon monoxide to produce degrees of blood saturation comparable to those obtaining in drivers. In the first experiments, about 900 cc of pure carbon monoxide was put into 1,000 liters of air in a large bag. The subjects breathed this for an hour through a mouth piece. Blood samples were taken before the exposure, after thirty minutes of exposure and at the end of the experiment. The inspired and expired air was analyzed and the volume of respiration was measured, together with the respiratory rate, the pulse rate and the concentration of the blood sugar. The second set of experiments was made in substantially the same manner except that automobile exhaust gases were used in place of pure carbon monoxide. The tests used to determine the effect on driving ability were the time taken to remove the foot from the accelerator, the time to push down a brake pedal after a red light was flashed on, perception of depth, ability to see dim objects at the side of a bright light, ability to see the approach or recession of bright objects, and accuracy of steering. In the second group of experiments the steering test and the test with the bright light were abandoned. A coordination testing device was substituted. In eleven experiments of this nature on eight normal men it was found that their performances in simple tests of reaction time, binocular

<sup>1</sup> Mueller J. H. Proc Soc Exper Biol & Med 19 161 (Jan) 1922

<sup>2</sup> Jackson R. W. and Block R. J. J Biol Chem 98 465 (Nov) 1932

<sup>3</sup> Brand Erwin Cahill G. F. and Harris M. M. J Biol Chem 110 399 (July) 1935

<sup>4</sup> Womack Madeline Kemmerer K. S. and Rose W. C. J Biol Chem 121 403 (Nov) 1937

<sup>5</sup> White Abraham and Beach E. F. J Biol Chem 122 219 (Dec) 1937

<sup>6</sup> Blumenthal Doris and Clarke H. T. J Biol Chem 110 33 (July) 1935

<sup>1</sup> Forbes W. H. Dill D. B. De Silva H. and Van D. er F. M. The Influence of Moderate Carbon Monoxide Poisoning on the Ability to Drive Automobiles J Indust Hyg & Toxicol 19 593 (Dec) 1937



vision and similar trials were unaffected by breathing carbon monoxide until their blood was 30 per cent or more saturated. At 45 per cent saturation the quality of performance was only slightly impaired. Subjectively the persons tested felt normal up to 30 per cent saturation, but the two whose blood reached a 45 per cent saturation appeared and felt unequal to driving a car because unable to think of many things at once. The pulse rate, respiratory rate and concentration of blood sugar also remained unchanged up to 30 per cent saturation. It was agreed, however, that a test was needed to show the ability to attend to several things at once and that there might be some impairment with low saturation which could not be demonstrated by tests applied.

### THE MORE ABUNDANT DIET

Current emphasis on the essential components of diet has perhaps caused some neglect of the part which quantity plays. McLester,<sup>1</sup> in an address given before the American Dietetic Association in Richmond last October, spoke feelingly of the illnesses that have been made worse by the injudicious restriction of food and of the benefit that may be reasonably expected from the administration of a more abundant diet. First among those diseases unfavorably affected by dietary restriction is typhoid. Today, although still without specific treatment typhoid patients, in contradistinction to past procedure, are given liberal rations with graphically demonstrable effect on the case fatality rates. Similarly and only slightly less striking are the results in Bright's disease. The discovery that low plasma protein is a salient feature of glomerular nephritis, and the subsequent introduction of liberal protein rations, have no doubt saved many patients with nephritis. A similar story is being written with essential hypertension and nephrosclerosis. Although neither is primarily a disease of the kidneys protein restriction probably has been carried too far in the past. Even more important than treatment is the adequacy of diet in the prevention of disease. The prevention of infection by dietary means has been predicated repeatedly during the last few years. In fact, liberal amounts of foods rich in vitamins are almost certainly one factor in the protection against infection. Nutritive deficiency, McLester believes, is not infrequently the underlying cause of such disabilities as lack of appetite, digestive disorders, vague pains and discomforts unassociated with other organic disease. Such symptoms are seen particularly among women, young and old, irrespective of economic status, who would remain stylishly thin, and among food faddists and those who, because of some digestive disorder, have been caught in a vicious circle of dietary restriction. The ideal diet, therefore, is one which both in sickness and in health will meet but not exceed the individual's caloric needs and which will provide a liberal excess of duly calculated requirements of nutritive essentials especially proteins and vitamins.

<sup>1</sup> McLester J S. The More Abundant Diet. *J Am Dietet A* 14:1 (Jan) 1938.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ARKANSAS

**State Medical Meeting at Texarkana**—The sixty-third annual session of the Arkansas Medical Society will be held at the Grim Hotel, Texarkana, April 18-20, under the presidency of Dr. Oscar J. T. Johnston, Batesville. The following scientific program has been arranged:

- Dr. John H. J. Upham, Columbus, Ohio: President, American Medical Association. Clinical Implications of Some Recent Studies in Gastric Motility.
- Dr. M. Herbert Barker, Chicago: Phases of Renal Edema and Their Treatment.
- Dr. John Shelton Horsley, Richmond, Va.: The Symptoms, Diagnosis and Treatment of Cancer of the Stomach.
- Dr. Charles R. Gowen, Shreveport, La.: Collapse Therapy in Pulmonary Tuberculosis.
- Dr. Alexis F. Hartmann, St. Louis: Present Status of Sulfanilamide Therapy for Severe Infections in Infants and Children.
- Dr. Don H. O'Donoghue, Oklahoma City: Fractures of the Elbow.
- Dr. Clarence B. Erickson, Shreveport: Treatment of Some Common Skin Diseases.
- Dr. Arthur G. Schoch, Dallas: Diagnosis and Treatment of Early Syphilis.
- Dr. Wiley R. Buffington, New Orleans: Detached Retina.
- Dr. Nesbitt L. Miller, Oklahoma City: Allergy in General Practice.
- Dr. Frederick J. Taussig, St. Louis: Controlling the Size of the Family.
- Dr. Roland M. Klemme, St. Louis: Diagnosis and Treatment of Brain Tumors.

The breakfast for past presidents will be held Wednesday morning and the conference of county society secretaries to be addressed by Dr. Shade D. Neely, Muskogee, Okla., will take place Monday morning. There will be a golf tournament Tuesday at the Texarkana Country Club. The Arkansas State Pediatric Society will meet Monday at the Grim Hotel and the fourteenth annual meeting of the Woman's Auxiliary will be held at the McCartney Hotel, Texarkana. Speakers at a public session will include Dr. Horsley on 'The Menace of Cancer' and Dr. Upham, 'Present Day Problems in the Medical Profession.'

### CALIFORNIA

**Society News**—Dr. Alvin G. Foord, Pasadena, addressed the San Diego County Medical Society March 8 on 'Classification and Diagnosis of Anemias.'—Dr. Pierce C. Barrette, San Jose, among others, addressed the Santa Clara County Medical Society recently on 'Effectiveness of Water Soluble Iodine in Reversing the Wassermann Reaction' and Dr. Marvin B. Morehead, Internal Pneumolysis in the Treatment of Pulmonary Tuberculosis.

**Study of Hospitalization of Insane**—Five physicians have been appointed to a committee to aid the state interim committee on state hospitals, authorized by the legislature to study hospitalization of the insane according to the *Oakland Tribune*. Those named on the advisory committee are Drs. Glenn E. Myers, Compton; Forrest N. Anderson, Los Angeles; Benjamin W. Black, Oakland; Edward W. Twitchell, San Francisco; and Clifford W. Mack, Livermore.

### CONNECTICUT

**Diagnostic Clinics for Crippled Children**—The first crippled children's diagnostic clinic under the Connecticut State Plan for Crippled Children Services was held at the Windham Community Memorial Hospital, Willimantic, February 3, and the second at the William W. Backus Hospital, Norwich, February 9. Others were held February 24 at Danbury Hospital, Danbury; March 2 at Newington Home for Crippled Children, Newington; and March 11 at Stamford Hospital, Stamford.

**Dr. Steiner Honored**—The Hartford Medical Society gave a dinner February 7 in honor of Dr. Walter R. Steiner, who has served as librarian for thirty-five years and for whom the society recently named its library. Dr. Thomas Archibald Malloch, librarian of the New York Academy of Medicine, New York, gave an address on 'Medical Libraries.' A portrait of Dr. Steiner was presented to the society and unveiled. Dr. Steiner was president of the Medical Library Association from 1931 to 1933, secretary of the Connecticut State Medical Society from 1905 to 1912, chairman of its council 1929-1933, and president 1934-1935. He was president of the Hartford

Medical Society in 1929 and of the American Clinical and Climatological Association, 1934-1935. Except for the sessions of 1926 and 1928, Dr Steiner has been a member of the House of Delegates of the American Medical Association since 1919.

### ILLINOIS

**Committee to Standardize Diagnostic Laboratory Procedures**—The appointment of a special state committee on standardizing diagnostic laboratory procedures throughout Illinois has been announced by the state department of health. Members include

Dr Alexander A. Day, professor of bacteriology, Northwestern University Medical School, Chicago.

Dr Irving H. Neece, district counselor of the seventh district of the Illinois State Medical Society.

Dr Lewis R. Hill, pathologist, Chicago.

Dr John L. White, chief of the diagnostic laboratories, Chicago City Health Department.

Dr Lloyd Arnold, professor of bacteriology and public health, University of Illinois College of Medicine, Chicago.

Reuben Kahn, D.Sc., Ann Arbor, Mich., consultant.

The first meeting of the committee was held March 15. Its function will be to work out standards for the approval of diagnostic laboratories in the state and to act as referee in cases of dispute concerning the approval of local laboratories.

### Chicago

**Meetings of Chicago Medical Society**—Dr Olm West, Secretary and General Manager, American Medical Association, will address the Chicago Medical Society at a special meeting April 10 in the Goodman Theater on "Medicine and the Government." Dr Logan Clendenning, Kansas City, Mo., clinical professor of medicine, University of Kansas School of Medicine, will deliver a public lecture sponsored by the medical society at the Goodman Theater April 13 on "The Care and Feeding of Humans."

**Bertha Kaplan Spector Dies**—Bertha Kaplan Spector, Ph.D., research associate in medicine at the University of Chicago and well known for her work in amebic dysentery, died March 26 in Billings Hospital of Hodgkin's disease, aged 41. Dr Spector, who took her doctorate at the university in 1931, had been on the staff since July 1, 1929, working under a special grant of the Douglas Smith Foundation in the Department of Medicine, Division of Biological Sciences. She had served as research assistant at the Bussey Institute of Harvard University, bacteriologist at the U. S. Army Base Hospital, Fort Riley, Kan., the U. S. Veterans' Administration Facility, Hines, Ill., Cook County Hospital and on the staff of the University of Illinois College of Medicine. From 1934 until her death she was protozoologist of the U. S. Public Health Service. She assisted in the investigation of an outbreak of amebic dysentery in Chicago in 1926 and did important work in the epidemic in 1933. She also assisted in a study of dysentery in New Mexico made by the National Institute of Health, U. S. Public Health Service, in 1936 and 1937, among certain groups of American Indians. In 1929 Dr Spector received the Beaumont Prize from the University of Illinois for her research on diseases of the gastro-intestinal tract.

### IOWA

**Society News**—Dr Albert Graeme Mitchell, Cincinnati, discussed "What I Do Not Know About Endocrinues" before the Linn County Medical Society March 31 in Cedar Rapids. The society was addressed March 3 by Drs Nathaniel G. Alcock, Iowa City, on "Malignancy of the Kidney," Paul F. Stookey, Kansas City, Mo., "Staphylococcus Septicemia," and James H. Allen, Iowa City, "Staphylococcus Conjunctivitis."—Dr Frank R. Peterson, Iowa City, addressed the Black Hawk County Medical Society in Waterloo February 15 on "Cancer of the Colon and Rectum."—At a meeting of the Crawford County Medical Society in DeWitt February 15 Dr John Harry Murphy, Omaha, discussed "Tuberculosis in Children."—Drs Arthur Stendler and Joseph H. Wolfe, Iowa City, presented a symposium on fractures before the Johnson County Medical Society, Iowa City, February 2.

### KANSAS

**Educational Program on Tuberculosis**—The Kansas Tuberculosis and Health Association in cooperation with the Kansas State Board of Health and the committee on the control of tuberculosis of the state medical society will sponsor an educational program on the control of tuberculosis, April 18-22. Lectures will be delivered before professional and lay audiences, the speakers to be Drs Paul A. Teschner, Chicago, assistant director, Bureau of Health and Public Instruction, American Medical Association, and Hyman I. Spector, chief of the chest clinic and instructor in internal medicine, St. Louis

University School of Medicine, St. Louis. Dr Teschner will address the profession on "Cases, Contacts and Cooperation" and lay audiences, "Fighting Tuberculosis to a Finish." Dr Spector, as the clinical speaker, will discuss subjects pertaining chiefly to the early diagnosis of pulmonary tuberculosis. Tentative dates and places of meetings are Leavenworth April 18, Ottawa April 19, Parsons April 20, Wichita April 21 and Russell April 22. It is planned to hold the session for the public in the afternoons, when the film "Behind the Shadows" will be shown.

### LOUISIANA

**Shell Oysters Must Be Tagged**—In accordance with a recently revised federal law, the Louisiana State Board of Health ordered that after March 1 all shipments of shell oysters without identification tags be stopped. The purpose of the tagging is to facilitate the tracing of oysters to the bedding grounds where they are grown in case they cause any illness when eaten. Tags may be obtained by the oyster fishermen from the dealers to whom they ship.

**Sentenced for Posing as Physician**—D. T. Garrison Meridian, Miss., was sentenced by Judge Ben C. Dawkins in federal court, Shreveport, March 2, to serve three years in the El Reno, Okla., federal penitentiary when he was found guilty of posing as a government physician, according to the Shreveport Times. Garrison is said to have defrauded Negroes of DeSoto Parish by selling them a concoction which he claimed was a medicine of "great curative powers." The mixture was said to contain aloes and peppermint, which Garrison sold in bottles at \$4.50 each, making a profit of \$4.35 on each sale. The testimony disclosed that Garrison claimed to be a chiropractor, stating that he received a diploma from a chiropractic school in Chicago twenty-three years ago.

### MASSACHUSETTS

**Society News**—Dr John T. B. Carmody, among others, addressed the Worcester District Medical Society March 9 on "Indications for Surgical Intervention in Head Injuries."—The Brookfield Medical Club was addressed March 16 by Dr George L. Schadt, Springfield, on "Modern Laboratory Technique for the Practicing Physician."—Dr Joseph C. Aub Boston, discussed "Endocrine Disorders of Childhood" before the New England Pediatric Society February 25.—At a meeting of the Harvard Medical Society, Boston March 8 Dr John P. Peters, New Haven, Conn., spoke on "Exchange Between Cells and Interstitial Fluid."—The New England Heart Association was addressed February 28 in Boston, among others, by Drs Burton E. Hamilton on "Prognosis of Adult Women with Mitral Stenosis" and Lewis M. Hursthal, "Congestive Failure on Using Digitalis."

### MICHIGAN

**Personal**—Dr Reuben J. Harrington, Muskegon has been appointed health officer of Muskegon County.—At a meeting of the Dickinson-Iron County Medical Society in Crystal Falls, February 9, Dr Joseph A. Crowell, Iron Mountain, was made a member emeritus and Dr Edward P. Lockhart, Norway, an honorary member.—Dr Luther Peck, health officer of Plymouth, was presented with the community service award by the Rotary Club of Plymouth, February 25, in recognition of his thirty-five years' service to the city. Dr Peck has been health officer since 1935 and also held the position many years ago.

**Annual Clinic**—The Ingham County Medical Society will hold its annual clinic at the Hotel Olds, Lansing, April 28. The following will participate:

Dr Henry G. Poncher, Chicago, Clinical Implications of Recent Advances in Nutrition in Infancy and Childhood.  
Dr Edward H. Ryncerson, Rochester, Minn., Protamine Insulin.  
Dr James M. Pierce, Cincinnati, The Management of Abnormal Labor.  
Dr Frederick Christopher, Evanston, Ill., Diagnosis and Treatment of Right Lower Quadrant Lesions.

Mr C. O. Otto, secretary, Lansing Chamber of Commerce will be the toastmaster at the annual banquet and Dr Fred Erick A. Collier, Ann Arbor, the speaker.

### NEBRASKA

**Society News**—At a meeting of the Third Council District in Pawnee City recently the speakers included Drs Raymond L. Traynor, on "The Diarrheas," William J. McVirtin, Omaha, "Use of Sulfanilamide in Urinary Tract Infections," and Frank P. Murphy, Omaha, "Management of Occiput Posterior Presentation."—The Southwest Medical Society met February 12 in McCook, with the following speakers:

ers, all of Omaha. Drs. Herbert H. Davis, on "Endocrinology Related to Physiology", Frank Lowell Dunn, "Treatment of Arthritis," and Abiam E. Bennett "Prevention of Neurosyphilis."—Clarence C. Little, Sr., D., Bar Harbor, Maine, addressed the Omaha-Douglas County Medical Society, March 10, on "The Cancer Problem."

### NEW JERSEY

**State Society President Honored**—Dr. William G. Herrman, Asbury Park, president of the Medical Society of New Jersey, received a medal of honor from Rutgers University, New Brunswick, at a ceremony on Alumni Day February 22. Dr. Herrman graduated from Rutgers in 1912. The president of the university, Robert C. Clothier, Litt. D., paid tribute in his citation to Dr. Herrman's services, both to the university and to the medical profession.

### NEW YORK

**Personal**—Dr. Evelyn F. H. Rogers, Bedford Hills, has been appointed epidemiologist-in-training in the state department of health and after a year's study will be assigned to the division of maternity, infancy and child hygiene.

**Society News**—Dr. James J. Short, New York, addressed the Dutchess County Medical Society, February 9, on "Studies in Obesity."—Dr. Frederick A. D. Alexander, Albany, addressed the Montgomery County Medical Society, February 16, at Amsterdam, on "Use of Common Depressant Hypnotics for Preanesthesia and Postanesthesia."—At a meeting of the Niagara County Medical Society, February 8, Dr. Clayton W. Greene, Buffalo, spoke on "What Can We Do for Angina Pectoris and Coronary Occlusion."—A group of pathologists met in Albany, February 26, to organize the New York State Society of Pathologists.

**Typhoid Carriers Under Supervision**—The state department of health recently reported that 398 typhoid carriers are now under supervision in upstate New York, exclusive of those in state institutions, eighteen more than the number reported for 1936. During the year forty-three carriers were added to the list and thirty were removed. Twenty-nine were discovered through epidemiologic study of outbreaks or sporadic outbreaks. Of those removed from the list twelve died and ten moved from the state. Seven were released after submitting the required number of negative specimens. Three outbreaks during 1937 were traced to previously unrecognized carriers.

### New York City

**Long Island Alumni Meeting**—The Alumni Day of Long Island College of Medicine will be held April 30 at the college and hospital. Dr. Albert F. R. Andresen will speak on "Gastrointestinal Carcinoma" and Capt. Richard C. Holcomb, U. S. Navy, "The Evolutionary Perspective of Syphilis." The annual dinner will be held at the Columbus Club, with Mayor Frank Hague of Jersey City as the speaker.

**Conference on Tuberculosis**—The fourteenth clinical session of the Tuberculosis Sanatorium Conference of Metropolitan New York will be held April 13 at Cornell University Medical College. The speakers will be Drs. Emmanuel W. Billard on "Hematogenous Tuberculosis", Clara Regina Gross, "Postinstitutional Supervision of Cases", Arthur B. Robins, "Mass Case Finding", and Herbert R. Edwards. Tuberculosis Program of the Department of Health.

**Third Teaching Health Center Opened**—The Kips Bay-Yorkville Health Center, the third of five to be operated by the city in conjunction with the five medical schools of the city, was opened March 16. Speakers at the ceremonies were Mayor La Guardia, Dr. John L. Rice, health commissioner, Dr. Livingston Farrand, president emeritus, and Edmund Ezra Day, Ph.D., president of Cornell University, with which the new center will be affiliated. The four-story building was built with PWA funds at a cost of \$314,000 and the site was made available to the city by the Rockefeller Foundation and the Milbank Memorial Fund.

**Dr. Keyes Awarded the Snow Medal**—Dr. Edward L. Keyes, professor of clinical surgery, Cornell University Medical College, received the first William Freeman Snow Medal for distinguished service in the field of social hygiene at the annual dinner of the American Social Hygiene Association, February 3, at the Hotel Astor. This award was established at a testimonial dinner Oct. 1, 1937, to Dr. Snow, general director of the American Social Hygiene Association. Dr. Keyes was president of the association from 1923 to 1935.

He was graduated from Columbia University College of Physicians and Surgeons in 1895 and has been a teacher of urology at Cornell since 1904, except 1910-1911 when he was professor of urology at Bellevue Hospital Medical College. He has been president of the American Association of Genito-Urinary Surgeons, American Urological Association and the International Urological Association.

### NORTH CAROLINA

**Tumor Clinic at Wake Forest**—The cancer committee of the Medical Society of North Carolina will sponsor a tumor clinic at the Wake Forest College School of Medicine, Wake Forest, April 14-15. The speakers will be Drs. Charles F. Geschickter, Baltimore, J. Grafton Love, Rochester, Minn., and Max Cutler, Chicago.

**Pneumonia Control Commission**—The North Carolina State Board of Health, with the cooperation of the Medical Society of North Carolina and the Duke University School of Medicine, has established a pneumonia commission with Dr. Hubert B. Haywood, Raleigh, as chairman. One of its first activities was a week of laboratory instruction for technicians of the state at Duke University in January, attended by more than sixty technicians.

**Society News**—Dr. B. B. Vincent, Lyon, Philadelphia, addressed the Rowan County Medical Society, Salisbury, February 3, on "Diagnosis and Medical Management of Gallbladder Diseases."—Dr. Wingate M. Johnson, Winston-Salem, N. C., addressed the Guilford County Medical Society, Greensboro, February 3, on "Osteomyelitis and Staphylococcus Septicemia."—Dr. Wilson Pendleton, Asheville, addressed the Buncombe County Medical Society, Asheville, January 17, on "The Allergic Patient."—Drs. Forrest D. Edwards, Lenoir, and Lawrence M. Fetner, Lenoir, addressed the Catawba Valley Medical Society, Hickory, January 13, on "Pneumonia" and "Superficial Roentgen Therapy, Its Uses and Abuses," respectively.

### OHIO

**Society News**—Dr. Emmerich von Haam, Columbus, addressed the Montgomery County Medical Society, Dayton, February 18, on "Diagnosis of Venereal Lesions."—Dr. Jennings M. King, Pittsburgh, addressed the Columbiana County Medical Society, Lisbon, February 8, on "Arthritis with Special Attention to Orthopedic Treatment."—Dr. William W. Weis, Piqua, addressed the Miami County Medical Society in Troy, February 4, on cancer of the breast.—Dr. Miles Tischer, Hoerner, Dayton, was the speaker at a meeting of the Preble County Medical Society, Eaton, February 16, on diagnosis and treatment of jaundice.—Dr. Harry V. Paryzek, Cleveland, discussed "Dangers of Socialized Medicine" before the Lorain County Medical Society, Elyria, February 8.—Dr. Harold C. Weisenbarger, Lima, addressed the Mercer County Medical Society, Rockford, February 17, on "Kidneys and Their Diseases."

### OKLAHOMA

**Graduate Course in Obstetrics**—The committee on postgraduate teaching of the Oklahoma State Medical Association has arranged a course in obstetrics to be given throughout the state. There will be ten lectures and clinics lasting two hours once a week. Dr. Edward N. Smith, Jersey City, N. J., will be the instructor. Financial assistance has been furnished by the Commonwealth Fund and the state department of health. The fee will be \$5 for the course.

### PENNSYLVANIA

**State Tuberculosis Meeting**—The forty-sixth annual meeting of the Pennsylvania Tuberculosis Society was held in York, February 15-16. At a special medical session the speakers were Homer L. Sampson, D.Sc., Saranac Lake, N. Y., on "Place of the Roentgen Ray in Tuberculosis" and Dr. James Burns Amberson, Jr., New York, on "Pneumothorax." Dr. William Devitt, Allenwood, was elected president.

### Philadelphia

**Society News**—Among speakers at a meeting of the Philadelphia Pediatric Society, March 8, were Drs. Thomas A. Shallow, on "Foreign Bodies in the Intestinal Tract of Children," David M. Davis, "Results in Treatment of Pyelitis Resistant to Medical Management," and John W. Holmes, "Summary of Results in Treatment of Gonorrheal Vaginitis with Sulfanilamide."—Drs. William Edward Chamberlain and Temple S. Fay, among others, addressed the Philadelphia Urological Society, February 28, on "Peculiarities of Backflow."

and 'Role of Suprapubic Cystostomy in Cord Bladder' respectively—Dr Warfield T Longcope, Baltimore, delivered the nineteenth Nathan Lewis Hatfield Lecture of the College of Physicians of Philadelphia, March 2, on "Pathogenesis and Treatment of Streptococcal Infection"—Speakers before the Obstetrical Society of Philadelphia, March 3, were Drs Clayton T Beechan, on "Postpartum Hemorrhage as a Cause of Death", Ralph M Tyson, "Seven Years' Study of Infant Mortality," and James P Lewis, "Treatment of Myoma Uteri"—At a meeting of the Philadelphia Roentgen Ray Society, March 3, Drs Gilson C Engel, Hans May and Robert Shoemaker presented a paper on Use of the Two-Plane Direction and Range Finder for Internal Fixation for Fractures of the Neck of the Femur and Dr Jacob Gershon-Cohen Effect of Osmotic Changes in the Duodenum on Gastric Motility"

### Pittsburgh

**Annual Meeting**—Dr Irvin Abell, Louisville, Ky, President-Elect of the American Medical Association, will address the Allegheny County Medical Society at its annual meeting and banquet April 19 at the William Penn Hotel At the afternoon scientific session speakers will be

Dr Charles W Mayo Rochester Minn A Surgical Viewpoint of Duodenal Ulcer  
Dr Udo J Wile Ann Arbor Mich Syphilis in Relation to Surgical Problems  
Dr Chevalier Jackson Philadelphia Pulmonary Pathology with Special Reference to Its Study in the Living  
Dr Frank E Adam New York Diagnosis and Treatment of Breast Tumors  
Dr Roy W Scott Cleveland Clinical Aspects of Arteriosclerosis  
Mayor Scully will be a speaker at the banquet

### TENNESSEE

**State Medical Meeting at Nashville**—The one hundred and fifth annual meeting of the Tennessee State Medical Association will be held in Nashville April 12-14 with headquarters at the Noel Hotel Guest speakers are announced as follows

Dr James W Bruce Louisville Ky Behavior Problems in Children  
Dr Gershon J Thompson Rochester Minn Transurethral Prostatectomy  
Dr John Zahorsky St Louis The Newborn Baby in the Hospital  
Dr Arthur W Erskine Cedar Rapids Iowa Modern X-Ray Treatment  
Dr H Earle Conwell Birmingham Ala The Internal Fixation of Fractures of the Neck of the Femur  
Dr Frank E Whitacre Chicago and Memphis Treatment of the Non convulsive Toxemia of Pregnancy

At an evening meeting Dr Irvin Abell, Louisville, President-Elect of the American Medical Association, will deliver an address on Medicine and the Changing Social Order and Dr George C Williamson, Columbia, will deliver his address as president of the state association A symposium on traumatic cases has been arranged in cooperation with the section on railway surgery with the following speakers Drs William J Sheridan, Chattanooga Jarrell Penn Knoxville George K Carpenter, Nashville and Willis C Campbell Memphis A symposium on sulfamidamide will be presented by Drs Jefferson C Pennington and Eugene Orr Nashville and Gilbert J Levy, Memphis The Tennessee Academy of Ophthalmology and Otolaryngology will hold its meeting Monday April 11 with Dr Walter L Lillie Philadelphia as its guest speaker on 'Neurologic Phases of Ophthalmology' The Tennessee State Pediatric Society will meet in the morning of April 12 and in a joint session with the medical association in the afternoon

### TEXAS

**State Tuberculosis Meeting**—The Texas Tuberculosis Association will meet in El Paso April 15-16 Guest speakers will include Drs Jay Arthur Myers Minneapolis, president of the National Tuberculosis Association, Lewis J Moorman Oklahoma City, and Mr Holland Hudson, director of rehabilitation of the national association

**Society News**—A symposium on carcinoma was presented at a meeting of the Dallas County Medical Society, Dallas March 10 by Drs Ozro T Woods, who spoke on Carcinoma of the Fundus, Charles L Martin Carcinoma of the Cervix, and Harold A O'Brien Genito-Urinary Complications of Cancer of the Uterus—At a recent meeting of the Bexar County Medical Society San Antonio, the speakers all of the staff of Fort Sam Houston Hospital were Lieut Col Patrick S Madigan on 'Neuritis General Polynuritis Major Harry A Bishop Congenital Heart Disease and Col Shelby U Marietta Pulmonary Abscess—Dr Taylor C Walker Beaumont addressed the Hardin-Tyler Counties Medical Society in Kountze in February on Differential Diagnosis of

Pain in the Region of the Heart'—Drs Thomas B Burt Fort Worth, and Bam Leake, Gladewater, addressed the Grady County Medical Society in February on "X Ray Therapy in Pneumonia" and "Syphilis of the Central Nervous System" respectively—At the February meeting of the Kaufman County Medical Society in Kaufman the speakers were Dr Thomas H Cheavens, Dallas, and William P Philips Greenville on "Treatment of Neurosyphilis" and "Lacerations of the Face and Scalp" respectively

### WISCONSIN

**New Officers of State Board**—Dr William W Kelly Green Bay, was recently chosen president-elect of the state board of health and Dr John J Seelman, Milwaukee, became president Dr Joseph Dean, Madison, was elected vice president

**Personal**—Dr Francis P Daly, Chippewa Falls, deputy state health officer, was the guest of honor at the annual meeting February 11 of the Old Settlers' Association in Reedsburg where he practiced from 1897 to 1931—Dr Margaret E Hatfield, Janesville, has been appointed health director of Rock County as part of an enlarged health program made possible by a federal grant of \$5,800 Dr Hatfield has been serving part time in this position

**Society News**—Dr Foster L McMillan, Chicago, addressed the La Crosse County Medical Society, recently, on 'Regional Enteritis'—Dr William S Middleton, Madison, addressed the Outagamie County Medical Society, Appleton, recently, on 'Advances in Treatment of Pneumonia'—Dr Eben J Carey, Milwaukee, addressed the Rock County Medical Society, Beloit, recently on 'Role of the Doctor in Health Education of the Public'—A symposium on "Disorders of the Eye, Ear, Nose and Throat as They Relate to General Practice" was presented before the Medical Society of Milwaukee County, Milwaukee, March 11, by Drs Edward R Ryan, Ferdinand H Haessler, Earl W Martens and Mark J Bach

### GENERAL

**President Proclaims April Cancer Control Month**—President Roosevelt, pursuant to a joint resolution of Congress, issued a proclamation March 28 designating April as 'Cancer Control Month' and inviting governors of states territories and possessions of the United States to make similar proclamations The proclamation invites the medical profession the press and all agencies and individuals interested in a national program for control of cancer by education and other cooperative means to unite during April in a public dedication to such a program and in a concerted effort to impress the people of the nation with its necessity

**Association on Mental Deficiency**—The sixty second annual convention of the American Association on Mental Deficiency will be held in Richmond, Va, April 20-23 with headquarters at the Hotel Jefferson Among the speakers will be

Dr Edward J Humphrey Thell N Y The Field of Psychiatry in Relation to the Work of State School  
Dr Henry V Pollock and George Levine Boston Relation of Pituitary Function to Normal and Abnormal Mental States as Revealed by Roentgenograms of the Skull  
Dr Clemens E Bender Wrentham Mass Studies in the Endocrine Pathology of Mongoloid Deficiency  
Dr Bronson Crothers Boston Birth Injuries and the Illnesses of Infancy in the Etiology of Mental Deficiency  
Dr Arnold L Gesell New Haven Conn A Behavior Study of Birth Injury  
Dr James N Williams Richmond Financial Education of Children  
Dr William B McIlwaine III Petersburg Va The Correlation Between the Pediatrician the Psychiatrist and the Psychologist

Dr Harry C Storrs superintendent of Letchworth Village, Thells N Y is president of the association and will deliver his official address at a dinner Friday evening April 22

**Physicians and Hospitals Defrauded**—A Kansas City physician recently reported a case of fraud perpetrated by a man apparently suffering from angina pectoris, which he said resulted from an alcoholic spree He asked to be taken to a Catholic hospital, stating that he was heavily insured in the "North American Electrical Engineers," which would take care of all expenses He said he was an electrical engineer, graduated from Notre Dame University According to his story he had received a shock of 30,000 volts of electricity while working in Mexico eight years before This accident had caused serious cardiac damage which had made him virtually an invalid for three years Examination revealed a loud diastolic murmur blood pressure of 150/50 and cardiac (or coronary) enlargement, the physician reported The excessive pain was relieved

with amyl nitrite and during the time the man was in the hospital he consumed large quantities of pantopon, dilaudid and atropine. He said that he had an aneurysm and had had syphilis. After a week of treatment in the hospital he produced no evidence of money or insurance policies and worked a ruse to escape. A woman who was with him at first was said to have gone to Joplin, Mo., and several telephone calls to Joplin were charged to the hospital. Altogether he incurred obligations of about \$250 and paid nothing. He gave his name as J. T. Satterlee and was also known as Adams.

**First International Health Broadcast May 2**—A half hour radio broadcast between England and the United States on rheumatic heart disease will be heard over the National Broadcasting Company Red Network, May 2 at 7 30 p. m., eastern daylight saving time, as an observance of May Day-Child Health Day. The program, said to be the first international broadcast on a health problem, was arranged by the American Heart Association and Irvington House, a convalescent home for children with heart disease at Irvington-on-Hudson, N. Y. Lord Horder, physician-in-ordinary to King George VI, will open the radio conference, speaking from London on public health aspects of the disease. Dr. William J. Kerr, San Francisco, president of the American Heart Association, will tell of the work of that association in this field. Then from Atlantic City, N. J., Drs. Homer F. Swift, New York, and Thomas Duckett Jones, Boston, will speak on investigations on the cause of the disease and on treatment of children with rheumatic heart disease, respectively. The members of the committee that has arranged this broadcast are Drs. Arthur C. DeGraff, New York, Edwin P. Maynard Jr., Brooklyn, James G. Carr, Chicago, Thomas Duckett Jones, Boston, Harold M. Marvin, New Haven, Conn., William D. Stroud, Philadelphia, Miss Gertrude P. Wood, of the American Heart Association, New York, Mrs. Edwin H. Koehler of Irvington House, and Dr. Kerr.

**Fiftieth Anniversary of Anatomists**—The American Association of Anatomists will celebrate the fiftieth anniversary of its founding at its annual meeting at the University of Pittsburgh April 14-16. The anniversary will be observed with a special program presented by former presidents of the association as follows:

Dr. Ross G. Harrison, New Haven, Conn., Factors Concerned in Development of the Ear  
Dr. Robert R. Bensley, Chicago, Plasmosin: An Important Constituent of Protoplasm  
Dr. Clarence M. Jackson, Minneapolis, Nature of Abnormally Rapid Increase in Body Weight Following a Period of Growth Suppression  
Dr. Florence R. Sabin (with Dr. Austin L. Joyner), New York, Tuberculous Allergy Without Infection  
Dr. George L. Streeter, Baltimore, Origin of the Gut Endoderm in Macaque Embryos  
Dr. Charles R. Stockard, New York, Structural Disharmony: The Genetic and Developmental Independence of the Upper and Lower Jaws

Included on the program of more than 200 papers are the following:

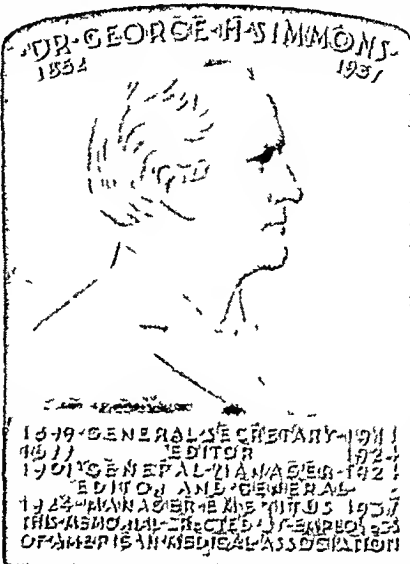
Dr. Eben J. Carey, Milwaukee, Experimental Histology of Nerve Fibers  
Raymond C. Truex, M.S., Minneapolis, Changes in the Semilunar Ganglion Referable to Senescence in Man  
Dr. Patrick Alexis Martin, Francis Fitzgerald, Waterford, Ireland, Developmental Problem Presented by the Brain of a Mentally Defective Child  
Drs. George N. Papanicolaou and Emil A. Talk, New York, Production of General Muscular Hypertrophy by the Androgenic Hormone  
Carl R. Moore, Ph.D., Jule K. Lamar, B.S., and Naomi Beck, A.B., Chicago, Effectiveness of Sex Hormones Administered as Skin Ointment

This meeting will be in conjunction with the annual meeting of the American Association of Physical Anthropologists.

**Conference of State and Provincial Health Authorities**—The annual Conference of State and Provincial Health Authorities of North America with the U. S. Public Health Service will be held in Washington, D. C., April 9-11. The meeting will open with a symposium on "Recent Extension and the Future of Medical and Public Health Services," with the following speakers: Drs. Thomas Parran, surgeon general, U. S. Public Health Service, Ralph C. Williams, of the Service, Frederick W. Jackson, Winnipeg, deputy minister of health for Manitoba, and Rosco G. Leland, Chicago, director, Bureau of Medical Economics, American Medical Association. Sunday will be devoted to committee work and in the evening there will be a dinner at the Hotel Willard in honor of members with more than twenty-five years service as follows: Drs. Cornelius A. Harper, Madison, Wis., Thomas R. Crowder, Chicago, Henry E. Young, Victoria, B. C., James A. Hayne, Columbia, S. C., Frederick E. Trotter, Honolulu, Hawaii, Arthur T. McCormack, Louisville, Ky., Charles F. Dalton, Burlington, Vt., William F. Cogswell, Helena, Mont.,

John A. Ferrell, New York, and Theodore B. Beatty, Salt Lake City. At Monday's session committees will report and there will be addresses by Drs. Earl B. McKinley, Washington, on "The Cartography of Disease in the United States" and Bolivar J. Lloyd, U. S. Public Health Service, retired, "The Role of Viscerotomy in the Control of Yellow Fever." Dr. Robert H. Riley, Baltimore, is president of the conference.

**Memorial Tablet to Dr. Simmons**—Reproduced on this page is a photograph of a bas relief showing the likeness of the late Dr. George H. Simmons. The tablet is erected by the employees in the headquarters office of the American Medi-



cal Association who wished to establish a permanent memorial in honor of Dr. Simmons. The bas relief is the work of Mr. C. Warner Williams, well known sculptor of Chicago, and will hang in the reception room on the first floor of the headquarters building where visitors will have an opportunity to see it. In this reception room there is a bust of Dr. Nathan Smith Davis, founder of the American Medical Association, and photographs relating to the historical development of the Association and its work. The

new edition of "Medical Writing" which will shortly be released (Dr. Simmons was co-author with Dr. Morris Fishbein of the first edition) is dedicated to Dr. Simmons and contains a full page reproduction of the bas relief. Dr. Simmons, who died Sept. 1, 1937, was associated with the American Medical Association as general secretary, editor and then as editor and general manager for twenty-five years.

## Government Services

### Annual Report of the Surgeon General of the Army

Automobile accidents, the leading cause of death in the U. S. Army since 1930, again led the list during the calendar year 1936 with 105 deaths, according to the annual report of the surgeon general. This was the highest number in a decade, the previous high being ninety-two in 1931, the number reported in 1935 was sixty-six. Of the total, thirty-eight deaths were attributed to collisions, in twenty-five cases the cause was listed "struck by automobile", in fourteen "car overturned" and in six the car had crashed into objects off the road. There were 1,539 admissions to sick report for automobile injuries. Suicides and airplane accidents occupied the second and third places in the list of causes of death, as they did in 1935, with totals of sixty and fifty eight, respectively.

The first disease to appear on the list was pneumonia, fourth in the list of causes with thirty-six deaths. This is the first year since 1934 that pneumonia has been first. Cancer and other malignant diseases follow pneumonia with thirty-four deaths. Sixth on the list is tuberculosis with thirty-one. Disease of the coronary arteries and angina pectoris, which led the list of diseases for 1935 with forty fatalities, caused twenty-six in 1936.

There were 664 deaths among army personnel in 1936, of which 330 were caused by disease, 334 by injuries. The death rate was 4.03 per thousand compared with 3.84 for 1935.

The leading causes of admission to sick report in 1936 were bronchitis 4,761, influenza 4,490, athletic exercises 4,378, acute tonsillitis 3,829, and gonorrhea 3,726. In 1935 athletic injuries accounted for the largest number (4,046). The total number of admissions for 1936 was 104,379.

During the year there were 1,835,370 days' absence from duty, a daily noneffective rate of 30.5 per thousand of strength. Syphilis and gonorrhea accounted for 14 per cent of the time



lost in 1936, injuries incurred through athletics, automobile accidents and falls for 10 per cent. The average time lost from duty per patient was 17.6 days, compared with 16.6 in the previous year. Gonorrhea was responsible for 196,168 days, athletic exercises were second with 66,509, and tuberculosis third with 61,948. To dementia paralytica was attributed the largest amount of time lost per case (241.3 days). Tuberculosis, which led this list the four previous years, was second with 223.6. Dementia praecox was third with 108.3 and cancer fourth with 108.1.

Influenza was more prevalent than for several years, with an admission rate of 27.3, compared with 19.9 in 1935, pneumonia with 590 cases (an admission rate of 3.6) was also more frequent than in the previous four years. There were 5,919 admissions for venereal disease in 1936, including nineteen cases of venereal lymphogranuloma, the number of admissions in 1935 was 5,010.

The surgeon general reports 1,235 cases of malaria during 1936, of which 532 were in Panama, 486 in the United States and five each in the Philippine Islands, Hawaii and China. There were 413 cases of dengue fever compared with 193 in 1935, 90.8 per cent were in the Philippines. There were four cases of typhoid, all in the Philippines, all these patients recovered.

Among unusual diseases reported for a few cases each were typhus six, lethargic encephalitis four, yaws eleven, undulant fever three, beriberi one, epidemic cerebrospinal meningitis thirty-two, poliomyelitis one, tularaemia three, Rocky Mountain spotted fever two, leishmaniasis one.

The report shows 1,679,492 days of treatment in hospitals and quarters for the regular army, 1,858,744 for other persons including Veterans' Administration, Soldiers' Home, National Guard, Officers' Reserve Corps, Reserve Officers' Training Corps, Citizens' Military Training Camps, Civilian Conservation Corps and other civilians. Outpatients for the year numbered 1,473,190 and the treatments received 2,715,325. There were 521,403 physical examinations and 372,846 vaccinations.

The average daily strength of the army in 1936 was 164,654 an increase of 22,086 over 1935. The average officer strength was 11,723. During the year seventy officers, twenty-three nurses and 2,247 enlisted men were separated from the service on account of disability. The discharge rate for the total army was 14.1 per thousand, as compared with 14.6 in 1935. As for more than ten years (except in 1934), dementia praecox was the leading cause of discharge, there were 248 cases. Tuberculosis, which led in 1934, was second in 1936 with 179 cases, tuberculosis was in third place in 1935. Pes planus was third with 167 for 1936, it was fourth in 1935 as a cause of discharge. Thirty-one officers and 840 enlisted men were invalided home from foreign posts, 813 because of disease and fifty-eight because of injuries. Nervous and mental diseases were the leading causes for invaliding home of patients.

The Army Medical Library celebrated its one hundredth anniversary Nov. 16, 1936. This library now has more than 400,000 volumes with approximately a million items including pamphlets, theses and similar material. During 1936 it added 3,813 bound volumes and 404 unbound volumes. It receives 1,825 periodicals. The second volume of the fourth series of the Index Catalogue, that for the letter B, was completed and issued in May 1937.

At the Army Medical School a new vaccine laboratory was finished in the fall of 1936 and a project on typhoid vaccine has been completed.

Two new registries were added during 1936 to the American Registry of Pathology maintained at the Army Medical Museum: the tumor registry sponsored by the American Society of Clinical Pathology and the dermatologic registry sponsored by the American Dermatological Society. Practically all fields are now covered in the registry except neuropathology.

### CORRECTION

**Sodium Chloride Tolerance in Chronic Nephritis**—In the abstracts of papers and discussions presented before the Central Society for Clinical Research in THE JOURNAL March 12, page 841, in Dr. M. Herbert Barker's discussion, the sentence "I believe that the sodium injury is associated with sodium retention" should read "It appears that there are certain cases of renal injury which are associated with sodium retention and intoxication." The last sentence in this discussion should read "When patients in the second half of life are subjected to surgical operation and receive from three to eight liters of salt solution a day or from twenty-seven to seventy-two grams of salt, there is grave danger."

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 12, 1936

#### Air Raid Precautions

The government has issued the Householders Handbook on Protection against Air Raids. It is desired to ascertain the views of the local authorities on the book in its present form. Among the contents are simple directions for preparing a refuge room in any type of dwelling, explanations of the purpose and use of a respirator and an outline of precautions against fire. In a preface Sir Samuel Hoare, home secretary, emphasizes the importance of householders cooperating in the defence against air raids. "Every home should have a refuge specially prepared in which the whole household could take cover in greater safety. Begin to collect materials for gas protecting your refuge room, materials for darkening your whole house, the things you need in your refuge room." To prepare a refuge room against entry of gas, any cracks or openings must be sealed up. Window frames must be sealed with gummed strip or pasted paper. To seal a door a piece of wood, padded with felt should be nailed to the floor, so that when closed the door presses tightly against it. A blanket should be fixed outside the door if the door opens outward, inside the door if it opens inward. If warning is received of the approach of hostile aircraft all windows and doors should be closed, fires in grates extinguished, gas jets turned off and the bath filled with water as a supply in case of fire.

#### High Voltage Roentgen Therapy of Exophthalmic Goiter

At the Royal Society of Medicine, Drs. E. P. Poulton and W. L. Watt, physician to Guy's Hospital and surgeon in charge of the high voltage roentgen therapy department respectively, demonstrated thirty patients who had suffered from exophthalmic goiter and had been cured or received benefit from high voltage roentgen therapy. The use of x-rays in this disease began soon after their discovery but the technique was defective and the only effect was to burn the skin without producing any change in the gland. Drs. Poulton and Watt began to use the x-rays in 1924 and gradually found that the thyroid would tolerate heavier and heavier doses until finally the present method of high voltage therapy was adopted five years ago. One course of treatment consists of five irradiations to the thyroid: (1) right anterolateral, (2) left anterolateral, (3) right posterolateral, (4) left posterolateral and (5) whole gland direct from the front. The total depth dose is not less than 80 per cent of a skin erythema dose. The procedure depends on the severity of the disease. In young patients for whom time is not an essential factor, the first course of high voltage therapy should be sufficient to effect a cure. To the worker for whom time is important, the full course should be given as soon as possible. It is preferable for the patient to be in bed for a week or ten days during the treatment and to rest as much as possible for one month afterward. Where necessary and the work is light the patient is allowed to continue it even during treatment. In severe cases the first course should be given as soon as possible. Rest in bed for ten or twelve days is essential with a month's complete rest afterward if possible. Results should be assessed in three months. With marked improvement further treatment should be postponed for another three months. With moderate improvement a second full course of treatment should be given. Should the symptoms persist at the end of a year, the question of a third course or other method should be considered. With no improvement a decision must be made between further irradiation and other treatment. In grave cases irradiation must be combined with medical treat-

ment, the primary being spread over three or four weeks, with complete rest for at least two months and further treatment as necessary.

Following Fraser's classification the results were as follows. From 55 to 60 per cent of the patients could do their former work without difficulty (class 1), from 30 to 40 per cent could do their work with difficulty or had to take a lighter job (class 2), from 5 to 10 per cent led an invalid life (class 3). At the demonstration, twenty-one of the patients (70 per cent) were in class 1 and nine (30 per cent) were in class 2. The comment was made that the pulse remained normal during the examination, when a rise might be expected from patients with exophthalmic goiter subject to such an ordeal. In the series auricular fibrillation was uncommon.

## PARIS

(From Our Regular Correspondent)

March 12, 1938

### Intravenous Drip Method in Treatment of Syphilis

At the March 1 meeting of the Académie de médecine de Paris a paper was read by Dr Arnault Tzanck in which he stated that the various preparations of arsenic which are the most active antisyphilitic agents cannot always be employed in doses as large as desirable, because of the danger of complications. The latter can be placed in three groups: 1. Late complications such as jaundice and erythrodermas which appear after the treatment has been discontinued; they occur no matter by what route the drug was given. 2. Complications which may be called "mediate," appearing from eight to ten days after administration of arsenical preparations; they are frequently observed after a third injection in the form of an apoplexy. 3. The accidents or complications which appear immediately after an injection. These complications can be avoided by giving neoarsphenamine or similar arsenical preparations by the intravenous drip method at the rate of 0.01 Gm. at the most, per minute. A total of 45 Gm. can be given in three days. This mode of intensive treatment by the intravenous drip method had been previously reported by American syphilologists but Dr Tzanck stated that he had not seen these reports at the time his own observations were being made. The first dose of 15 Gm. is administered in 150 cc. of physiologic solution of sodium chloride preferably by a vein in the forearm; the injection being given over a period of from three to five hours. A total of 157 patients had been treated by this method up to March 1. The results appear to be better than those observed with any other method. The lesions disappear rapidly. *Spirochaeta pallida* cannot be found either in the lesions or in the lymph nodes the day following the treatment. The Wassermann reaction is negative in two or three weeks. This observation applies especially to cases of persistently positive Wassermann reaction. Complications have not been noted in any of the cases.

### Inaugural Lecture of Prof. René Leriche

Reference has been made in several recent letters to the candidacy and, later, election of the internationally known surgeon Prof. René Leriche as successor of Prof. Charles Nicolle in the chair of experimental medicine at the Collège de France. This is an institution for research in all scientific fields, which although it forms a part of the University of Paris, better known as the Sorbonne, is independent of the Faculté de médecine. It is the custom in France for a newly appointed professor to deliver an inaugural lecture in which in addition to a eulogy of the preceding occupant of the particular chair it is customary to treat the question of the lecturer's own view regarding the present and future of the subjects to be covered in the course. After an eloquent eulogy of his predecessor, Prof. Charles Nicolle, the bacteriologist, the immediate objectives of modern surgery were discussed by Professor Leriche.

The first subheading was the endocrine aspect of postoperative complications. The problem of what really transpires after an operation still requires investigation. All our internal mechanism is dominated by endocrine action, hence the patient's emotions prior to a surgical procedure, especially in the case of those who dread it, can be measured by a rise of blood pressure during the initial steps, as the result of increased adrenal activity. It is not only prior to and during an operation but also after it that endocrine factors must be taken into consideration. The second question which requires further study is that of the process of healing of wounds. The role of the various connective tissue elements, ever ready to respond to a call for aid, is a most important one in modern surgery. There is some unknown physiologic impulse which determines that bone defects following operations should be repaired by new bone formation or other action. This is true also of most of the differentiated tissues of fibrous origin. A third field for further research is the mechanisms of pathologic changes. The origin of many diseases still remains a dark chapter despite intensive studies. Every tissue lives its own life, otherwise anarchy would result in the human body. The study of our defensive mechanisms has been almost entirely limited to diseases of bacterial origin. More ought to be known about those due to nonbacterial causes, such as injuries. Changes which are primarily the result of physiologic abnormality are responsible for many lesions. Recent experimental studies have shown that stimulation of the sympathetic, i. e., vasoconstriction, gives rise to leukopenia and that paralysis of the sympathetic, i. e., acute hyperemia to a polynucleosis. If the sympathetic is blocked with procaine hydrochloride in the vicinity of a traumatism an incipient infection can be aborted. The surgical physiology of the sympathetic nervous system offers an endless number of problems for study.

## BERLIN

(From Our Regular Correspondent)

Feb. 21, 1938

### Insurance for Physicians

The National Chamber of Physicians has just created a new insurance organization primarily destined to aid doctors and their families who, as the result of location, have not heretofore been able to obtain similar benefits. In some sections of Germany, to be sure, the superannuated practitioner and the surviving relatives of a deceased practitioner have for many years been legally protected against want. The newly organized insurance is governed by the following provisions:

The National Chamber of Physicians and several insurance societies have concluded agreements with respect to the types of insurance (life insurance, disability insurance, old age annuities and so on) which are to be made available to medical men under the new system. In general the benefits obtainable will be: life insurance (cash payment to beneficiary at death of the insured), 2,000 marks; annuity in case of total disability or superannuation, 1,500 marks (a retirement annuity begins when a man has reached the age of 64); annuity to insured's widow, 1,000 marks; annuity to child (mother living), 300 marks; annuity to completely orphaned child, 600 marks. Each child who is a direct beneficiary of the foregoing insurance will receive an annuity until he reaches the age of 21.

A special board has been appointed to administer the new insurance. Doctors registered with the various local medical boards will be expected to take out the new type of insurance, exempted from compulsory contributions; however, are doctors older than 40½ years, assistants, men who serve constantly as locum tenentes, medical officials and employed doctors who already have a legitimate claim to retirement pensions and survivor benefits. Likewise exempted are doctors who already carry a commensurate amount of life insurance and married women doctors whose husbands carry similar insurance.

Doctors who are legally exempt are permitted to participate voluntarily in the new insurance.

The amount of the premiums will be based on percentages of a practitioner's professional income, the exact scale has yet to be computed. If a doctor is over 40½ years of age, the medical professional organization makes to the insurance company a single extra payment of the amount necessary to bring the entrance age of the insured doctor down to 40½ years, the doctor then makes an extra payment to the medical organization, either in a lump sum or in instalments.

### Studies of Splenic Function

Several aspects of the function of the spleen were recently discussed by Dr. Erwin Schliephake at the Berlin Medical Society. The influence of the spleen on the sympathetic nervous system can be better understood through studies of the interrelation of the spleen and the thyroid. The thyroid secretion reduces vagal irritability. Thyroidectomy is followed by greatly increased vagal irritability and a decreased irritability of the sympathicus. The author has found that, after splenectomy, phenomena produced by thyroidectomy may be in part reversed, thus is demonstrated a splenic influence on the parasympathetic system analogous to the influence exerted by the thyroid on the sympathicus. Verification of these observations was obtained by injections of splenic extract. There was an increase in sensitivity to toxins which stimulate the vagus. From studies of splenic influence on gastric function, contradictory data were at first elicited. Only after examination of a large material was any regularity of reaction discernible, superacidity depreciated the acid values, whereas subacidity increased them. Normal acid values were on the contrary scarcely influenced. It thus became possible to determine the regulatory function. In healthy subjects who received injections of splenic extract the blood sugar values were lowered, but not in equal measure, several hours after the initial decline there appeared a temporary increase, which was succeeded by a second decline, only first after from eight to ten hours had elapsed were the initial values restored. The water content of the blood was observed to undergo a similar sequence of phases, administration of splenic extract was immediately followed by a depreciation of the value (as measured by the refractometer), followed by a rise and finally a second decline. (The splenic extract used contained no protein.) According to Schliephake, the importance of the spleen in prevention of disease is attested by various phenomena: increased phagocytosis following administration of splenic extract, an impetus to the formation of antitoxin, and an increase in the cholesterol value of the blood.

### BELGIUM

(From Our Regular Correspondent)

Jan 25, 1938

### The Specialist's Diploma

The Académie royale de médecine has addressed to the minister of health the following memorial:

The Académie is thoroughly conversant with the various objections raised by certain elements of the profession to the proposed creation of a specialist's diploma. These objections have not been cogent enough to modify the stand taken by the Académie. Each of the stock objections is herewith cited and refuted, they are essentially of two kinds: objections of a juridical nature and objections that concern the *modus operandi*.

#### I JURIDICAL OBJECTIONS

Many doctors fear that the establishment of a specialist's diploma would divide the profession, in the eyes of the laity, into two classes: "superior" doctors and "inferior" doctors. But present-day lay opinion already envisages a certain hierarchy among the medical profession, prominent specialists and doctors clothed with official functions (university professors,

heads of hospital services, and so on) are popularly considered of a higher order than the rank and file of general practitioner. Therefore the specialist's diploma would after all represent merely an official acknowledgment of an already existing status quo. This legal recognition of the peculiar training required by the specializing physician would redound to his prestige and protect him against unethical competition of improperly trained, self-styled "specialists." The fear has been expressed that under the proposed regulation a practitioner who lacks the specialist's diploma might be accused of having transgressed the limits of his competence and at the same time be held responsible for some alleged injury to the patient. However, it is stated in the preamble to the bill sponsored by the Académie that the new regulation in no way restricts the activities and privileges conferred by the degree of doctor of medicine, surgery, and obstetrics. The holder of this degree will retain the right to perform any ethical medical act. A patient therefore will be permitted no more grounds for action against a practitioner than he possesses under the present laws, which recognize allegations of gross ignorance, negligence or misconduct. The chief purpose of the proposed specialist's diploma is to enlighten the public.

#### II OBJECTIONS WITH REGARD TO *MODUS OPERANDI*

Quite as vociferous as the objections on juridical grounds have been the exceptions taken to the principle of compulsory examination envisaged in the proposed regulation.

1 Principle of compulsory examination. Certain parties are pleased to claim that the final examination for the doctor's degree in medicine, surgery and obstetrics represents the ultimate official and legal certification of a practitioner's competence. Persons who reason thus should recollect that the man who acquires a special scientific title such as "special physician" or "agregé in higher education" has to undergo tests which in many respects have the character of a formal examination. Similarly, a doctor who seeks membership in one of those scientific societies which represent the élite of the medical profession is usually required to prove himself worthy of admission by submission of an original thesis to be passed on by a committee. Even now there are certain specialist's diplomas which attest that the holders have passed a special examination. Why should not a like certification be required of the practitioner who claims to possess a particular skill in this or that medical discipline? The Académie feels that the granting of these certificates ought properly to be placed under the authority of the university medical faculties. These scholastic bodies would be empowered to determine the amount of study requisite in each specialty, to evaluate the extracurricular training, to hold the examinations of candidates and to appoint the personnel of the examining boards.

2 Alleged antidemocratic character of the proposed regulation. The point has been repeatedly made in speeches and articles that, since special medical training is as a rule available only in the larger hospitals, both university and nonuniversity of the big cities, the proposed specialist's diploma would only be accessible to doctors established in the larger centers or provided with ample financial resources. The Académie concedes the justice of this last objection but believes this inequality of opportunity can be easily obviated. It should be legally stipulated that candidates who desire to be examined in their special disciplines but who have not taken the prescribed course of study may, after a certain number of years of actual specialized practice, submit themselves to examination and on passing receive the specialist's diploma. The Académie does not see the slightest curtailment of rights at present conferred by the degree of doctor in medicine, surgery and obstetrics, nor does it seek to deter the holder of this degree from the performance of any medical procedure whatever. The salient feature of the proposed regulation is that several years of specialized practice would be required of all candidates for the specialist's diploma.

This document will be in essence a brevet of mastery and will carry with it no other privilege than the right to use the title. To clarify its aims, the Academie makes public a condensed restatement of the resolutions passed by it in 1933. Resolved (1) that the public authorities forbid the use of the title "specialist" by any physician not a holder of the special diploma which confers the right to this title and (2) that so far as possible the direction of the special services of those public health services whose members or clients do not enjoy free choice of physician should be reserved to the holders of the new diploma.

#### National Alimentation Committee

A Comite national de l'alimentation has just been created. The problem of nutrition has come to assume a new importance in Belgium from the standpoint of public health and from that of national economy. The minister of public health decided that concerted investigations of this problem were necessary. The new committee will have as its principal task the formulation of a national food policy. The committee will collaborate with all interested organizations, national and international, and with the League of Nations. It will appoint both members and nonmembers to serve on four subcommittees, the special duties of which will concern, respectively, (1) biologic studies, (2) social and statistical studies, (3) problems relative to the control of foodstuffs, and (4) education, propaganda and methods in the domain of a national food administration.

#### Occupational Training of Crippled Persons

The minister of labor and social prevoyance has just established an investigatory commission that is to reexamine the whole problem of occupational training for the crippled and the maimed. The commission will investigate the social destiny of persons who receive benefits from the Foundation for Crippled and Maimed Persons and persons who have not been aided by this organization. This means a comprehensive study of the problem. In particular, efforts will be made to enumerate all cases of crippling and maiming and to note whether treatment has been too hastily or too tardily initiated. Furthermore all special vocational training schools and similar establishments will be inspected and plans for the expansion of the existing facilities and the foundation of new institutions will be studied.

#### BUDAPEST

(From Our Regular Correspondent)

Feb 24, 1938

#### Congress of Dwarfs in Budapest

Just as it is widely known that the center of the watch trade is Geneva, the center of the steel industry is Sheffield and the center of the fur market is Leipzig, it is just as well known that the center of Europe's dwarf market is in Budapest. All the shows of Europe and even many oversea varieties visit the Budapest market if they want dwarf artists. The dwarfs of Europe resolved to hold a congress in Budapest to which they intend to invite all the dwarfs of the world and here they plan to discuss the ways and means by which they can combat the general conception that dwarfs are good only for exhibition and that they are not suited to regular civilian occupations. They want to show the world that they are capable of filling all kinds of industrial and even intellectual posts. The date of the congress has not yet been set.

#### The Sports of the Sick Man

Dr Daniel Kellner, a notable sports physician said at a recent meeting of the medical society that gymnastics is the nature given remedy for effeminacy. Every efficacious remedy has a dose which within certain limits varies according to the individual thus also sports must be dosed even if one is dealing with perfectly healthy men and all the more so with

not wholly healthy persons, for whom modern physicians not only do not forbid participation in sports but even suggest a moderate degree of athletics. These patients perhaps need the physiologic stimuli hidden in motion rather more than vigorous and strong athletes do. Over the physical exercises of persons suffering from chronic diseases constant medical control must be applied, because only thus can physical exercises become useful and not harmful to the patient. In young persons of the asthenic type, who according to our knowledge are less resistant, physical exercise, commenced cautiously and continued with gradual increase, is the only way toward improvement. Patients suffering from valvular diseases may require moving. Terrain therapy on sloping places were known of old and were applied by physicians prior to the "sports craze." Of course in these cases medical control is implicitly necessary, because in the same subject, according to the different stages of the disease, rest is at one time required and then movement of a certain extent. In instances of compensated and balanced valvular disturbances, likewise in cases of moderate hypertension, light gymnastic exercises, outdoor games, exercises of the abdominal muscles and hunting may have a good effect. But racing or climbing means a greater effort and is conducive to high blood pressure. In metabolic disorders, such as diabetes, obesity or gout, physical exercises in gradually rising increments may prove beneficial. To get rid of excessive deposits of fat on the abdominal wall, rowing, walking, moderate running and gymnastics of the abdominal muscles are to be recommended. Of course, in addition, adequate diet and certain drugs cannot be dispensed with. In diabetes and gout moderate exercise, hunting, riding, tennis playing and rowing are recommended by prominent clinicians. For women suffering from disturbances caused by the climacteric, sports and outdoor pastimes are much to be recommended, their action being invigorating also on their minds, refreshing bodily movements have a favorable influence on the labilities of mood connected with the change.

#### AUSTRALIA

(From Our Regular Correspondent)

March 2, 1938

#### The State and the Medical Profession in Queensland

The future of medical practice in Queensland is at the crossroads. The commonwealth government is seriously bent on national insurance with the support, in principle, of the Federal Council of the British Medical Association. The Queensland government, on the other hand, tends toward a hospitalization program. The Queensland branch of the British Medical Association has been endeavoring to counter its government's tendency by urging a scheme of its own which is based on the "lodge" system, using the existing friendly societies as an administrative basis. Into this sea of conflicting ideas was launched through the daily press, January 12, an "open letter" to medical men from the director general of health and medical services purporting to be a request for cooperation with the Queensland government. Shortly after its appearance in the press, a questionnaire was sent to all practitioners in Queensland. They were asked to signify whether they were willing, if called on, to enroll with the department of health, for various types of hospital insurance or preventive medical work, on a full time or a part time basis. In view of the fact that the Queensland branch of the British Medical Association has been complaining for several years that it was unable to make contact with the department of health, much less cooperate with it, the present appeal from the director general was greeted with surprise.

In September 1935 the Queensland branch of the British Medical Association published a scheme for a national medical service for the state. It was based on the provision of a general practitioner for every family. The association proposed that

the scheme would be financed by compulsory medical insurance, with government subsidy to provide for the unemployed and for chronic invalids. The association was opposed to full time nationalization on the ground that it would be detrimental to the profession and the patient. It was emphatic that the patient's right of free choice of a doctor should be preserved. The minister for health stated at the time that the scheme was vague, that it had not been supported by actuarial evidence and that the government would not commit itself without obtaining the fullest information. In February 1936 the British Medical Association asked for the establishment of a joint committee to examine, from a professional and actuarial standpoint, the policy for a general medical service. The minister's reply to this was that the association should formulate a definite scheme showing exactly what contributions would be required from the public and what benefits contributories would receive. For two years no further progress was made. Now the appeal comes from the department to the medical profession not from the minister but direct from his professional adviser, and not through the medium of the British Medical Association but by means of the press, and by circulars to individual practitioners.

The appeal for cooperation is taken to mean that the government proposes shortly to extend its activities to the provision of public medical services. Possible inferences from the letter are (1) that the government would retain a limited number of doctors who would be wholly paid from public funds or (2) that a large number of doctors would be paid to devote part of their time to public medical service. It is not known to what extent any such scheme would be affected by the federal national insurance plans, which presumably would bear part of the cost of such a scheme. Probably by the time the commonwealth proposals can be put into effect the Queensland scheme would be well developed. The open letter indicated the increased demand by the poorer sections of the community for medical care and for which, under the existing system, they are incapable of paying.

It was pointed out by the *Medical Journal of Australia* that Sir Raphael Cilento, the Queensland director general of health, had taken practically the whole of his 'letter' from papers read at the Philadelphia conference February 1934 on the subject "The Medical Profession and the Public Currents and Counter Currents." These speeches were made by men opposed to the American Medical Association because it was not prepared to approve a scheme of national insurance for the United States. The Queensland branch council of the British Medical Association advised members of the branch that they might reply in the affirmative to all the questions in the circular letter, with the proviso that acceptance is subject to the qualification that the conditions of service are satisfactory and are approved by the Queensland branch of the British Medical Association. The waters are as troubled as ever because in spite of its high sounding phrases it did not commit the government to any future in particular. A frank round table discussion would have been a much easier method of exploring the possibilities which the future holds forth.

#### Fee Splitting Illegal in Victoria

A bill prohibiting composite accounts and the sharing of fees has been passed in the legislative assembly of Victoria. It is now illegal for a medical practitioner to present an inclusive account for services rendered by himself and other doctors. This practice has been the cause of complaints from the public, and the Medical Board of Victoria requested that suitable action should be taken to put an end to a method of account rendering which is open to abuse. A patient who pays an account covering the services of more than one doctor is unaware of the fees payable to the other doctor or doctors, who in turn are unaware of the fees included on their behalf, in the composite account. This is considered unfair to the patient and contrary to the best

interests of the medical profession. The bill remedies the situation by prohibiting a medical practitioner from demanding payment, presenting an account or collecting fees for professional services rendered by any other medical practitioner, except a partner, assistant in his sole employment or locum tenens, and forbids a medical practitioner to share, or agree to share, fees for professional services with any doctor other than a partner, assistant or locum tenens. Partnership agreements must be approved and registered by the medical board, to prevent the defense being raised that doctors are carrying on their profession in partnership. Sir Stanley Argyle, speaker in the assembly, supported the bill, stating that it was designed chiefly in the interests of the public to prevent its exploitation between general practitioners and specialists or between general practitioners and surgeons or consultants. At a special meeting of the Victorian Branch of the British Medical Association the opinion was expressed that the bill was unnecessary and that its effect would probably be to prejudice confidence between doctor and patient. Regret was expressed that the branch had not been given an opportunity to consider the details of the bill before it was passed. Subsequently however the meeting approved of the bill, and that approval was conveyed to the government.

#### Legislation for Control of Biologic Products

The commonwealth government, in the Therapeutic Substances Act of 1937, has introduced a measure of control over the preparation, import and export of biologic products. The legislation is to apply only to therapeutic serums, bacterial products and glandular extracts. No control is exercised over such more strictly chemical substances as the arsphenamines, digitalis and strophanthus. For the purpose of this act a therapeutic substance is defined as one which is "wholly or in part derived from microscopic organisms or from living cellular tissues or from glands removed from animals after slaughter." This legislation followed the conference on biologic standardization held at Geneva in October 1935, in which Australia was represented among twenty-four countries. It now standardizes the definitions of therapeutic units throughout Australia. Previously, three states had adopted the standard of the Hygiene Laboratory at Washington, while the remaining two Australian states had not accepted any standard. There is only one Australian source of therapeutic serums, the commonwealth serum laboratories. Serums of other sources are imported but they have to contend with a high tariff wall. The commonwealth laboratories have served well the demands of such products in Australia and New Zealand.

### Marriages

FREDERICK WILHELM VAN BLSKIRK JR, Pottstown Pa to Miss Margaret Moffitt of Ashboro N C, in Greensboro, N C, Dec 29, 1937

RUSSELL MACRAE ATCHISON, Northville, Mich, to Miss Ruth Mary Baldwin of Jonesville, in Albion January 22

LEIGH G COLLINS, West Point, Neb, to Miss De Line Hettrick at Lincoln, recently

EDWARD ARNOLD, Canton, Ohio to Miss Melba Leav of Demopolis, January 27

THOMAS E WARD to Miss Evelyn Bartlett, both of Williamsport, Ind, January 19

ABE C FELLMAN to Miss Betty Fellman, both of Omaha, February 27

MORTIMER M KOPF to Miss Lillian Lux, both of Brooklyn March 11

HERBERT D KUEPER, Kenesaw, Neb, to Miss Marie Bay in January



## Deaths

**George Henry Crabtree** \* Colonel, U S Army, retired, Sedro Woolley, Wash., Medico Chirurgical College of Philadelphia, 1893, veteran of the Spanish-American and World wars, entered the army as an assistant surgeon in 1901, rose through the various ranks, retired Jan 29, 1917, as a lieutenant colonel, returned to active duty April 24 1917, and served until 1919 retired as a colonel June 21 1930 on the staff of the Northern State Hospital and State Narcotic Farm Colony, aged 67 died, January 16, in the Rowley Hospital, Mount Vernon

**Edwin Benjamin Ramsdell**, White Plains, N Y University of the City of New York Medical Department, 1878, member of the Medical Society of the State of New York, examining surgeon for pensions, department of interior, 1890-1894, assistant surgeon to the Manhattan Eye and Ear Hospital, 1881-1891, attending surgeon to the New York Nose and Throat Hospital, 1891-1900, medical officer to the New York fire department, 1895-1920, aged 81, died, January 19, of chronic myocarditis

**Grayson Emery Tarkington**, Albuquerque, N M, University of Maryland School of Medicine, Baltimore, 1917, member of the New Mexico Medical Society, fellow of the American College of Physicians, served during the World War, on the staffs of the Children's Home and Hospital, Southwestern Presbyterian Hospital and St Joseph Sanatorium and Hospital, aged 43, died, January 12, as the result of injury received in a fall

**James M Smith** \* Valdosta, Ga., Atlanta Medical College, 1898 member of the American Academy of Ophthalmology and Oto-Laryngology, fellow of the American College of Surgeons, past president of the Medical Association of Georgia on the staff of the Little-Griffin Private Hospital aged 62 died, January 8 of a malignant condition of the intestinal tract

**Arthur Brown Bisbee**, Montpelier, Vt., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1882, member of the Vermont State Medical Society on the staff of the Heaton Hospital for many years medical director of the National Life Insurance Company, aged 79, died, January 31, of arteriosclerosis

**Marshall Ashby Purse**, St Simons Island, Ga., Southern Medical College, Atlanta, 1890 College of Physicians and Surgeons, Medical Department of Columbia College New York, 1892, member of the Medical Association of Georgia, aged 71, died, January 7 at a hospital in Brunswick of coronary thrombosis and myocarditis

**George Fisk**, Montreal, Que., Canada, University of Bishop College Faculty of Medicine, Montreal, 1894 fellow of the American College of Surgeons, served during the World War, consulting surgeon to the Woman's General Hospital, aged 69, died January 28

**Frederick John Fox**, New York, University of Toronto Faculty of Medicine, 1908 formerly senior attending dermatologist to the West Side Hospital and Dispensary aged 59, died, January 6, in the British Guiana jungle, while with a party searching for Paul Redfern long missing American aviator

**P Calvin Hartford** \* East Palestine, Ohio, Western Reserve University Medical Department, Cleveland, 1887, Jefferson Medical College of Philadelphia 1894 past president of the Columbiana County Medical Society on the staff of the Salem City (Ohio) Hospital, aged 75, died January 3

**George F Warmburg**, Milwaukee Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin Prussia, Germany, 1891 member of the Washington State Medical Association aged 72 died, January 19, in the Columbia Hospital, of cerebral infarction and hypostatic pneumonia

**Louis Miller**, New York Columbia University College of Physicians and Surgeons, New York 1907 formerly adjunct professor of internal medicine at the New York Polyclinic Medical School and Hospital aged 55, died, January 1, in Miami, Fla of acute coronary thrombosis

**Robert Augustus Hamrick**, Clay W Va (licensed in West Virginia in 1903), county health officer and county coroner, chairman of the medical draft board in Clay County during the World War at one time mayor of Clay, aged 68 died January 27, of coronary thrombosis

**Daniel Waldo Fenton** \* Reading Mich Detroit Medical College, 1876, formerly secretary of the Hillsdale County Medical Society at various times mayor, member of the council and secretary of the board of education aged 89, died January 8, of coronary thrombosis

**Charles Louis Rudasill** \* Richmond, Va., Medical College of Virginia, Richmond, 1914, medical director of the Life Insurance Company of Virginia, served during the World War, aged 47, died, January 13, in the Tucker Sanatorium, of a self-inflicted bullet wound

**Alfred Michaelis** \* New York, Columbia University College of Physicians and Surgeons, New York, 1898, assistant professor of otolaryngology at his alma mater, aged 63, on the staff of the Presbyterian Hospital, where he died, January 27, of angina pectoris

**E Jones Stroud**, Chicago, Loyola University School of Medicine, Chicago, 1929, member of the Illinois State Medical Society, on the staff of the Little Company of Mary Hospital, Evergreen Park, Ill., aged 45, died, January 11, of lobar pneumonia

**Eilef A Smedal** \* La Crosse, Wis., Rush Medical College, Chicago, 1916 past president of the La Crosse County Medical Society, aged 48, on the staff of St Francis Hospital, where he died, January 30, of pulmonary tuberculosis and diabetes mellitus

**George Homer Buffington**, Decatur, Ark., Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1900, member of the Arkansas Medical Society, formerly mayor of Gravette, bank president, aged 68, died, January 24, of heart disease

**Thomas Obadiah Senior**, Nashville, Tenn Meharry Medical College, Nashville, 1923, professor of dermatology at his alma mater aged 54, on the staff of the Hubbard Hospital, where he died, January 8, of chronic appendicitis and cholecystitis

**De Witt Clinton Jones**, St Paul, Trinity Medical College, Toronto, Ont., Canada, 1891, Victoria University Medical Department, Coburg, Ont 1891 formerly county coroner, member of the Minnesota State Medical Association, aged 69, died, Dec 23, 1937, of coronary occlusion and sclerosis

**William Fennelly McGrath**, North Adams, Mass., Baltimore Medical College, 1894, at one time city physician, on the courtesy staff of the North Adams Hospital, aged 72, died suddenly, January 24, of chronic myocarditis and nephritis

**Malcolm Morris Restall** \* Marblehead, Mass Harvard University Medical School, Boston, 1926, on the staffs of the Salem (Mass.) Hospital and the Mary Alley Emergency Hospital aged 39, died January 25, of coronary occlusion

**Marion Masters Ricketts** \* Sadorus, Ill., Chicago College of Medicine and Surgery, 1911, on the staffs of the Burnham City Hospital, Champaign, and the Mercy Hospital, Urbana, aged 60 died, January 14, of pulmonary tuberculosis

**Robert E Chumbley**, Radford, Va., University College of Medicine, Richmond, 1898 member of the Medical Society of Virginia, aged 64, died, Dec 31 1937, in the Jefferson Hospital, Roanoke of perforated duodenal ulcer

**Eugene McEvers Van Ness**, Baltimore University of Maryland School of Medicine, Baltimore, 1891, member of the Medical and Chirurgical Faculty of Maryland, aged 69, died, January 12, of carcinoma of the pancreas

**Crandall A Reynolds**, Lincoln Neb Nebraska College of Medicine, Lincoln, 1908 member of the Nebraska State Medical Association, on the staff of St Elizabeth's Hospital, aged 57, died, January 16, of angina pectoris

**George Carr Taylor**, Mentone Ind., Chicago College of Medicine and Surgery, 1910, member of the Indiana State Medical Association served during the World War, aged 57, died, January 23, of cerebral hemorrhage

**Joseph Eugene Turcot**, St Hyacinthe Que., Canada, M B, Laval University Faculty of Medicine, Quebec, 1873, and M D in 1875 formerly on the staff of St Charles Hospital, aged 87, died, Dec 11, 1937

**Jessie Penrose Smith**, Pennsville Ohio Ohio Medical University Columbus 1896, aged 72 died January 27, in the Memorial Hospital, Marietta, of burns received when her clothing ignited from a gas grate

**Andrew J Marberry**, San Angelo, Texas, Missouri Medical College, St Louis, 1881 member of the State Medical Association of Texas, aged 84, died, January 2, of arteriosclerosis and heart disease

**Luther A Barnes**, Huntsville, Texas, Memphis (Tenn.) Hospital Medical College, 1907 member of the State Medical Association of Texas aged 56, died January 27, in Apopka, Fla, of angina pectoris

**Edward Tuck Manix** \* Lynn, Mass., Harvard University Medical School, Boston, 1898 formerly on the staff of the Lynn Hospital aged 61 died, January 19, of arteriosclerosis and coronary thrombosis

Hugh Ralph Martin, Riverside, Calif., Creighton University School of Medicine, Omaha, 1937, intern at the University of Kansas Hospitals, Kansas City, aged 26, died, January 30, of pneumonia

Henry T. Dixon, Evansville, Ind., University of Louisville (Ky.) Medical Department, 1879, formerly secretary of the city board of health, aged 87, died, January 13, of cerebral hemorrhage

Louis Jalmer Smith, Chester, Ill., St. Louis University School of Medicine, 1903, formerly physician to the Southern Illinois Penitentiary, aged 66, died, Dec 1, 1937, of arteriosclerosis

Ezra Herbert Perry, Providence, R. I., Bellevue Hospital Medical College, New York, 1870, aged 89, died, January 3, of bronchopneumonia, diabetes mellitus and arteriosclerosis

Otis Burgess Moye, Soperton, Ga., Atlanta College of Physicians and Surgeons, 1900, aged 62, died, January 23, in Lake Wales, Fla., of chronic myocarditis and hypertension

Joseph M. Murray, Hollandale Miss., University of the South Medical Department Sewanec, Tenn., 1901, aged 67, died, January 23, of carcinoma of the tongue and throat

Andrew McAlpine McCune, Rose Hill, Miss., Memphis (Tenn.) Hospital Medical College, 1899, aged 65, died, January 12, of chronic nephritis and rheumatic heart disease

William Thomas Thompson, Texarkana, Texas, Meharry Medical College, Nashville, Tenn., 1914, aged 53, died, January 26, of cerebral hemorrhage and hypertension

Jedd D. Walker, Hogansville, Ga., Southern Medical College, Atlanta, 1886, died, January 7, in the Newnan (Ga.) Hospital, as the result of injuries received in a fall

Sidney Fain Hutcherson, Adairsville, Ga., University of Georgia Medical Department, Augusta 1913, aged 51, died suddenly, January 12, of coronary occlusion

Thomas Rowe Price, Glyndon, Md., University of Maryland School of Medicine, Baltimore, 1891, aged 72, died, January 16, of carcinoma of the prostate

Herbert Crawford Perkins, Boston (licensed in Massachusetts in 1899), aged 61, was found dead in his automobile, January 29, of cerebral hemorrhage

Felix Manning Brown, Hopkinsville, Ky., Vanderbilt University School of Medicine, Nashville, Tenn., 1893, aged 66, died, January 25, of arteriosclerosis

Lewis Farwell Voke, Columbus, Ohio, Starling Medical College, Columbus, 1896, aged 70, died, January 9, in Clermont, Fla., of chronic myocarditis

W. Guy Beals, Lake Valley, N. M., Hahnemann Medical College and Hospital, Chicago, 1883, aged 84, died, Dec 24, 1937, of cerebral hemorrhage

Malcolm A. McEachern, North Carrollton, Miss., Memphis (Tenn.) Hospital Medical College, 1900, aged 65, died, January 10, of lobar pneumonia

M. C. L. Kirksey, Dardanelle, Ark., Memphis (Tenn.) Hospital Medical College, 1897, aged 68, died, January 16, of hypertensive heart disease

Charles Forest Henderson, Los Angeles, St. Louis University School of Medicine, 1905, aged 58, died, January 24, of coronary thrombosis

Carl August Vogel, Cincinnati, University of Cincinnati College of Medicine, 1932, aged 30, died, January 28, of a self-inflicted bullet wound

Leo Rubin, Los Angeles, Long Island College Hospital Brooklyn, 1913, aged 49, was found dead, January 10, of coronary thrombosis

Alfred Seeley Wade, Renfrew, Ont., Canada, McGill University Faculty of Medicine, Montreal, Que., 1892, aged 67, died, January 8

James Hawkins Heflin, Atlanta, Ga., Atlanta Medical College, 1895, aged 63, died, January 24, of carcinoma of the esophagus

Robert H. Steinbach, Battle Creek, Mich., Detroit College of Medicine, 1896, aged 64, died, January 17, of cerebral hemorrhage

Clifford Lansing Terrill, San Francisco, Hospital College of Medicine, Louisville, Ky., 1903, aged 58, died, Dec 5, 1937

Benjamin J. Kent, Oil Trough, Ark. (licensed in Arkansas in 1903), aged 61, died, January 3, of cirrhosis of the liver

John A. Henry, Hope, Ark., Louisville (Ky.) Medical College, 1890, aged 76, died, January 30, of chronic nephritis

John W. Fleming Sr., Saltpa, Ala., Medical College of Alabama, Mobile, 1879, aged 88, died, Dec 12, 1937

## Bureau of Investigation

### THE GERALD'S BALM FRAUD

#### A Rupture Cure Swindle Debarred from the Mails

Under the trade styles "Gerald's Balm, Inc.," "Cooperative Balm Company" and "Cooperative Laboratories," all of Baltimore, there has been sold a fraudulent "patent medicine" called variously "Miracle Rupture Balm" and "Gerald's Balm." The stuff, which was sold through the mails, was an ointment consisting chiefly of petrolatum (90 per cent) and small amounts of red pepper, oil of mustard, turpentine and oil of wintergreen. The claims were made that by rubbing this mixture over a rupture visible results might be expected in three days, that trusses could be dispensed with and that persons who had suffered from hernia "for over 40 years" would be cured.

As is usual in "patent medicine" exploitation, the men behind this fraud were quite without any medical knowledge and the business had no physicians, pharmacists or chemists connected with it. In fact the concern was operated by two men: (1) Samuel Cohen, who had been in the clothing business and had never had even a high-school education and (2) Murray Emanuel who had previously been employed by a finance concern. Cohen manufactured the nostrum himself.

In May 1937 the office of the Solicitor for the Post Office Department called on the concern to show cause why a fraud order should not be issued in the case. On June 2, Cohen and his attorney appeared in Washington and the evidence in the case was heard. According to the government report on the case the rupture cure concern produced a witness in the person of Dr. J. Page Strong of Baltimore. The biographic records of the American Medical Association show that James Page Strong was graduated in 1907 when he was 37 years old by the Maryland Medical College and was licensed in Maryland in 1908. Dr. Strong is not a member of his local medical society nor, of course, of the American Medical Association. The doctor is reported, was unable to explain just how a mixture of petrolatum, red pepper, turpentine and mustard would reach the hernial cavity or penetrate through the several overlying tissues to the seat of the rupture.

Dr. Strong is said to have admitted that Gerald's Balm was a rubefacient or counter-irritant but he also insisted that when it reached the hernial opening it acted as an astringent. While agreeing that a counter-irritant and an astringent acted directly contrary to each other he was apparently unable to explain how the preparation had one effect on the skin and a directly contrary effect when it—allegedly—reached the hernia. Further, the doctor is said to have admitted that no one of the ingredients in the nostrum would reach the hernia in and of itself but to have claimed that the combination of the drugs in the "patent medicine" would do so. Yet Dr. Strong did not even know the ingredients of the stuff until he heard them at the meeting. The doctor, according to the government report, stated that he was not a surgeon, did not specialize in the treatment of hernia and, continues the report, "in fact showed by his testimony that he was somewhat unfamiliar with the anatomy of the human body at that point."

Physicians who testified for the government brought out the facts that there is no drug or combination of drugs known that, when applied externally, will cure hernia, that the preparation would not produce "gratifying results" in persons suffering from ruptures as large or larger than that of a chicken egg or of any other size as claimed that it would not produce visible results in three days that the representation that ruptured persons using the balm could dispense with their trusses was dangerous to health and life and that there was absolutely no possibility of a cure from rupture existing for over 40 years by the use of the preparation.

The Solicitor for the Post Office Department Judge Karl A. Crowley declared that the evidence in the case showed that this was a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises and he recommended that the Postmaster General issue a fraud order. On June 7, 1937 the order was issued.

## Correspondence

### THE THERAPY OF JAUNDICE—AN ADDITION

*To the Editor*—In the article on jaundice (THE JOURNAL, March 5) under section F, Icterus of the New-Born, No 2, the grave form of icterus, erythroblastosis is not mentioned. A percentage of recoveries in this disease may be secured by transfusion. In these cases other causes of icterus neonatorum should be ruled out, and if this is done a percentage of cases is left that it is impossible to account for except on some other theory. Such a theory is that of erythroblastosis which occurs in two types, the hydrops and the icteric. In the latter, the jaundice comes on early and is severe, but if transfusion is done early and repeated as needed a percentage of recoveries may be assured.

ALBERT E. STEELE, M.D., Boston

### DANGERS OF BURNING FROM CELLOPHANE COSTUMES

*To the Editor*—The Dennison Manufacturing Company sells for 10 cents a book entitled "How to Make Gay Colorful Costumes of Crepe Paper." Costume 9 on page 9, is described under the title "cellophane" and the book states "You will feel very glamorous indeed in a Cellophane costume. Better not smoke while you are wearing it."

I labored under a charge of being dogmatic when I emphatically refused to allow my daughter to have such a costume for a party. I argued that, any time three people over 16 years of age get together, at least one is smoking. To make a cellophane party costume is to go a long way out of the way in the search for trouble. A costume was provided of less inflammable material and the incident was forgotten. It comes to mind again today, on receipt of a letter from a relative who writes of a 5 year old girl 'who went to a Halloween party. The children were given Chinese lanterns with candles and the little girl's cellophane costume caught on fire and she died the next morning'.

How much interest can be aroused on the part of so called home magazines to warn of the fire hazard of a product that advertises in their pages remains to be seen. Physicians charged with the responsibility of the health and life of their patients will do well to call their patients' attention to this fire hazard and urge that the patients pass along the warning by word of mouth. The prevalence of smoking by persons of both sexes and almost all ages makes inflammable party costumes strictly contraindicated.

RAMSAY SPILLMAN, M.D., New York

### THE DUBLIN TREATMENT OF ABRUPTIO PLACENTAE

*To the Editor*—In a recent paper on premature separation of the placenta, Frederick C. Irving (*Am J Obst & Gynec* 34:881 [Nov.] 1937) concluded that conservative treatment offers the best prognosis for the mother. He follows the suggestion of J. O. Polak (*ibid* 21:218 [Feb.] 1931), using the so called Dublin treatment: rupture of the membranes, tight cervical and vaginal pack, and Spanish windlass. This method was introduced at the Rotunda Maternity Hospital in Dublin many years ago. Tweedy strongly advocated this treatment in 1909. R. J. Heffernan (*New England J Med* 214:370 [Feb. 20] 1936), reporting a small series of cases in 1936 also favors the pack and windlass method. However this form of treatment has not been used at the Rotunda since 1920.

When Gibbon FitzGibbon became Master of the Rotunda in 1920 he modified the treatment, introducing the method now used in Dublin: the membranes are ruptured, a tight abdominal

binder is put on, and if the patient is not in labor, 3 minims (0.2 cc) of solution of posterior pituitary is given every fifteen minutes for four doses. In 1926 FitzGibbon (*J Obst & Gynec Brit Emp* 33:194, 1926) reported sixty four cases with three deaths. Since the introduction of the newer treatment the mortality from abruptio placentae has been consistently low, much lower than at any other time in the history of the Rotunda. The method is fully described in the latest editions of textbooks written by Dublin obstetricians. Solomons and Falkner (*Textbook of Obstetrics*, New York, Oxford University Press, 1937) and O'Donel Browne (*Manual of Obstetrics*, Baltimore, Williams & Wilkins Company, 1937).

Dr. Andrew H. Davidson, present Master of the Rotunda, writes "The method of packing the vagina and applying a tight binder was introduced into the Rotunda by Sir William Smyly many years ago, and was in vogue until Dr. FitzGibbon came. He changed the method to the present one, and it is a very rare case that requires packing." In fact, the present teaching in Dublin is that packing is contraindicated, since solution of posterior pituitary given after tight cervical and vaginal packing may cause rupture of the uterus.

Previous to 1920 the mortality from abruptio placentae at the Rotunda was never below 15 per cent. In FitzGibbon's series of cases the mortality was 4 per cent. From August 1928 to October 1936 there were admitted to the Rotunda 255 cases of premature separation of the placenta. The total mortality rate was 4.7 per cent (Rotunda Reports, 1929 et seq.). Bethel Solomons, Master of the Rotunda in 1929, makes the following statement in his report for that year: "It cannot be too strongly urged that even an apparently moribund patient will recover with routine treatment and vaginal packing is scarcely ever indicated."

NATHAN N. COHEN, M.D., L.M. (ROTUNDA)  
Syracuse, N.Y.

### MODE OF ACTION OF SULFANILAMIDE

*To the Editor*—The article by Dr. Osgood and Miss Brownlee (*THE JOURNAL*, January 29, p. 349), reporting an investigation of the mode of action of sulfanilamide by use of their marrow culture technique represents an important contribution to the literature on this subject. Culture of the bone marrow provides a favorable device for investigating the reactions of these cells both to sulfanilamide and to the beta type hemolytic streptococci, alone and in combination. Especially interesting is the observation of the authors that living streptococci and marrow cells can exist together in culture for days without damage to the cells provided a sufficient concentration of sulfanilamide is maintained. However, it does not seem necessary to postulate any direct action of the drug on the toxins of this organism in order to explain this action especially since a bacteriostatic action of the drug has not been excluded by their experiments. Their results and those of Colbrook, Buttle and O'Meara and of Long and Bliss which they quote as favoring their hypothesis, can be adequately explained by an inhibitory action of the drug on the reproductive rate of the organism, such as has already been demonstrated by Long and Bliss for *Clostridium welchii* in mice. The authors also demonstrated this action but failed to give it proper evaluation in considering the action of sulfanilamide. Furthermore, the experimental data given in the paper do not show that the destruction of the marrow cells is due to toxins of the beta streptococcus, since experiments were not carried out with filtrates from cultures of this organism, either with or without sulfanilamide to determine the effect on the marrow cells in the absence of organisms. Lacking such data, the authors' results do not support their conclusion that the primary action of sulfanilamide is a neutralization of toxin in the case of the beta streptococcus.

Another point which has not been considered is that a slowing of the metabolism of the organisms, reflected by a slower rate of reproduction might also account for a diminished pro-

duction of toxic substances. Such an action would explain the authors' observation of some decrease in the size of hemolyzed areas about colonies produced by organisms which had been exposed to sulfanilamide.

The thesis that the elaboration of an exotoxin by an organism is necessary to the action of sulfanilamide against that organism has not found support from unpublished work in this laboratory on a non-toxin producing organism, *Bacterium necrophorum*. The virulent bovine strain used in these experiments causes an invariably fatal disease in rabbits. However, the infection can be controlled and cure can be brought about by treating the infected animals with sulfanilamide over a period of a week or more. Although we have not determined the mechanism as yet, it obviously cannot be due to the neutralization of any toxin.

ELIZABETH S. HEWENS, BS

G. M. DACK, MD, PHD, Chicago

Department of Bacteriology and Parasitology, University of Chicago

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### GOUT

To the Editor—My father has been suffering with recurring attacks of joint pain for the past ten years. The first attack involved the left big toe which became swollen, red, tender and very painful. At this time a diagnosis of gout was made and confirmed by x-ray examination of the toe and uric acid determination of the blood. He was given a purine free diet which he has used ever since but in spite of his guarded diet he has had yearly attacks of joint pain. The attacks usually occur suddenly and at night. At times he can predict the onset of the attack by slight pain in the joint. Usually only one joint is involved but at present he is suffering with pain in the left wrist and right ankle. After the acute attack the involved joint remains stiff for some time. At no time has any elevation of temperature been noted although the affected joint is much warmer. The joints most frequently involved are the left big toe, left ankle, left wrist and right elbow. He is 52 years old and a merchant. He is a hard worker and of a nervous type. He has always been troubled with constipation and indigestion (sour stomach and heart burn). For the past two years he has had severe frontal headaches lasting from twenty-four to forty-eight hours. In 1923 he passed two stones and in 1933 x-ray examination of the kidneys showed two kidney stones in the left kidney. A tonsillectomy was performed in 1923. A Wassermann test of the blood in 1933 was negative. X-ray examination of the teeth and sinuses gives negative results. Physical examination is negative except for a hypertension varying from 160/110 to 180/115. The heart is slightly enlarged to the left. The second aortic sound is greater than the second pulmonic sound. The lungs are clear. The abdomen is normal. The prostate and seminal vesicles are normal. X-ray examination of the feet shows an area of rarefaction on the head of each metatarsal which has the appearance of gout. Blood examination shows 4,580,000 red cells, 4,200 leukocytes and 90 per cent hemoglobin. The urine has a specific gravity of 1.022 and shows 1 plus albumin, a few epithelial and pus cells and occasional hyaline casts. A uric acid determination during an acute attack revealed 2.6 mg per hundred cubic centimeters of blood. The nonprotein nitrogen is 40 mg per hundred cubic centimeters of blood. Gastric analysis at sixty minutes reveals free hydrochloric acid 41 degrees and total acidity 61.5. What can be done to prevent future attacks of joint pain? What foods must not be eaten? What is your opinion as to eating small amounts of meat, drinking coffee or taking small amounts of wine with the meals? Are there any vegetables that contain uric acid? Is cinchophen the drug of choice and if so how should it be given to avoid damage to the liver? What is the significance of normal uric acid determination in an acute attack of gout? What part does the kidney play in this case? M. D. Colorado

ANSWER—It is assumed that peripheral subcutaneous tophi are not yet present. Whether they are present or not the history is consistent with a diagnosis of acute recurrent gouty arthritis. It is possible for patients to have a normal uric acid concentration in the blood during an early acute attack. As the disease progresses hyperuricemia becomes more obvious and more chronic. A value of blood uric acid as low as 2.6 mg per hundred cubic centimeters during an attack is unusual. Indeed it is low even for a normal person. It is suggested that estimations be repeated possibly checked in different laboratories.

Gout exhibits a seasonal effect becoming acute particularly during the spring (February-May) and autumn (August-October). During these months, patients should be particularly careful to avoid the various provocatives of gout they should adhere to their diet probably take cinchophen intermittently and avoid unusual trauma such as excess activity (from getting walking or long automobile driving). The amount of physical and recreational activity to which the patient is accustomed can generally be indulged in with impunity if it is the unaccustomed amounts (often indulged in during vacation) that may provoke an attack.

During an acute attack a patient with gout should be on a purine-free diet. After the attack is over he should continue on a purine-low diet four or five days a week and a purine free diet two or three days a week. A diet list used in one American clinic where many patients with gout are seen is as follows:

1 Food that contain a large amount of purine	2 Foods that contain a moderate amount of purine (a)	3 Foods that contain no purine
Sweetbreads Liver Kidney Squab Oysters Calf's tongue	Chicken Mutton Beacon Oysters Herring	Milk Eggs Cheese Caviar Shad roe Nuts
Turkey Pork Veal Sausage Beef Goose Anchovies Sardines Trout Pike Perch Codfish Lentils Gravies Meat extracts Meat soups	Salmon Lobster Crab Whitefish Asparagus Lima beans Navy beans Kidney beans Kohlrabi Onions Pears Spinach Mushrooms Oatmeal Whole grain cereals— such as cooked whole wheat and wheat biscuits Whole-grain bread— such as whole wheat and graham bread	Gelatin Sugar and sweets Coffee * Tea * Lecor * Fats of all kinds Fruits of all kinds Cereals (except whole grain) Bread (except whole grain) Vegetable soup (made without meat) Vegetables of all kinds except those listed in column 2 such as Lentils Spinach Mushrooms Pears Lima beans Navy beans Kidney beans Kohlrabi Asparagus Onions

\* Contain practically  
no purine as served

It is generally recommended that patients whose gout is moderately active confine their foods largely to those in column 3, eat one selection daily from foods listed in column 2, avoid foods in column 1 entirely and eat one selection from foods in column 1 b on rare occasions only, perhaps once every one or two weeks or less often depending on the severity of their gout. Moderate amounts of coffee and tea are permissible. All wines and liquors should be avoided although they contain no purines or only minute amounts they adversely affect gouty patients with unusual consistency.

The majority of physicians interested in gout in this country regard the intermittent use of cinchophen necessary for the adequate control of the gout in most cases (Hench, P. S. Diagnosis and Management of Gout in Certain Parts of the United States, *Proc. Staff Meet. Mayo Clin.* 12:262 [April 28] 1937). It is not certain whether liver damage from cinchophen can ever be completely avoided in the susceptible individual regardless of the method of administration. However, the great majority of persons including patients with gout are apparently not susceptible to cinchophen and can take it repeatedly with impunity. Graham's (*The Treatment of Gout*, *Proc. Roy. Soc. Med. Sect. Therap. & Pharmacol.* 20:1 1937) method of administration is as follows: 7½ grains (0.5 Gm) three times a day for three or four consecutive days each week. When the patient is taking cinchophen he should also take from 1000 to 1500 cc of fluid daily and enough alkali to alkalinize each specimen of urine voided (e.g. sodium bicarbonate two teaspoonfuls in the morning and one or two in the evening). Some recommend also that generous amounts of carbohydrate be taken on the days when cinchophen is used.

Early signs of susceptibility to cinchophen are gastro-intestinal upsets (nausea) and hives or other skin reactions. With the appearance of these symptoms which seem to be due to the cinchophen (and not to the alkali) cinchophen should be stopped probably permanently. Some believe that hives do not afford a permanent contraindication to cinchophen in the case of gout patients who cannot control symptoms otherwise and that hepatic susceptibility, does not necessarily accompany cinchophen susceptibility. They recommend the continued use of cinchophen.

in smaller doses. When the more serious signs of cinchophen toxicity appear (loss of weight, dyspepsia, icterus, pruritus) administration of the drug should of course be stopped immediately and appropriate therapy started (intravenous dextrose, high carbohydrate diet, generous fluid intake). The results of such treatment are now usually satisfactory and fatal cases of cinchophen toxicity are becoming fairly rare.

There is no established pharmacologic substitute for cinchophen. In general the amounts of salicylates necessary to reproduce the effect of cinchophen on urate excretion are so large that gastro-intestinal irritation and sweating are induced. Colchicine has no effect on urate excretion. Recently Hench (as cited) and Rutledge and Bedard (Criteria for the Diagnosis of Presumptive [Pretophaceous] Gout: Management of an Illustrative Case, *Proc Staff Meet Mayo Clin* 12:149 [March 10] 1937) have noted preliminary clinical observations on the synergistic action of salicylates and aminoacetic acid on urate excretion and have suggested that this combination may prove to be an effective substitute for cinchophen. This is supplemental to the physiologic observations of Quick (Relationship Between Chemical Structure and Physiologic Response: Conjugation of Salicylic Acid with Glycine and Its Action on Uric Acid Excretion, *J Biol Chem* 101:475 [July] 1933).

Patients with moderately advanced or late gout frequently develop kidney stones or gravel with or without frank nephritis. The gravel or stones are usually almost pure urates and are not opaque, and hence they are not visible in ordinary roentgenograms. Stones which ordinary roentgenograms reveal must be of mixed composition. Urate stones can be revealed only as nonopaque islands in the opaque shadows produced by intravenous (or other) pyelograms. The purpose of giving alkali during cinchophen administration is to prevent urates which are being excreted in excess from precipitating as stones or gravel in an acid urine.

#### COMPLEMENT FIXATION FOR WHOOPING COUGH

*To the Editor*—Please send me information on the complement fixation test for whooping cough. What is the technique?

J. C. CHAPMAN, M.D. Birmingham, Ala.

**ANSWER**—Daughtry-Denmark, since 1933, has used the complement fixation test technique for diagnosis, and after vaccination with the customary total dosage of 8 cc of authorized B pertussis vaccine (*Am J Dis Child* 52:587 [Sept.] 1936). To secure complete complement fixation some children require a total dosage of 11 cc occasionally 14 cc. E. L. Webb (serologist, Georgia State Department of Health, Atlanta), uses the following technique:

The procedure follows closely Kolmer's qualitative test for syphilis. The only difference in the application of this test to specimens to be examined for syphilis and those to be examined

#### Details of Procedure

	Unknown Positive and Negative Controls			Reagent Controls		
	Tube 1	Tube 2	Tube 3	Anti-gen	Hemo-lytic	Cell
Saline solution	0.1 cc	0.1 cc	10 cc	0	10	20
Patient's serum	0.1	0.1	0.2	0	0	0
Antigen suspension 1/2 anticomplementary unit	0.1	0.5	0	10	0	0
Complement solution 2 full units	10	10	10	10	10	0
Place in refrigerator at 6 S C for 14-15 hours (over night) and then in water bath at 7 C for 10-15 minutes. Remove and add						
Amboceptor solution 2 units	0	0	0.5	0	0	0.5
Sheep cell suspension 2 per cent	0	0	0	0.5	0.5	0.5
Shake well and place in 7 C water bath for one hour (ten minutes after serum antigen and hemolytic controls are completely hemolyzed may be substituted). Remove and read results immediately or store in refrigerator three or four hours for later reading.						

for whooping cough lies in the antigen. This antigen composed of the killed B pertussis in suspension, is furnished by Eli Lilly Biological Laboratory, Indianapolis.

The same unit of complement is taken as that determined in the titration preparatory to the performance of the complement fixation test, on specimens of blood submitted for the examination for syphilis.

The dosage of the pertussis antigen employed is one third of the anticomplementary unit determined by titration. For instance, if the anticomplementary unit of the pertussis antigen is 0.5 cc of a 1:5 dilution, 0.5 cc of a 1:15 dilution is employed in the test.

Because the anticomplementary activity of this antigen gradually increases with age even though stored in the refrigerator, small fresh lots of the antigen should be supplied at frequent intervals.

Any laboratory equipped for Wassermann testing can perform this test. The required blood (15 cc or more) is obtained from an arm vein or from the finger tip. After the skin has been cleansed with alcohol it is dried with sterile gauze, several deep pricks are made close together with a sharp Hagedorn needle, the blood drips into a small, sterile centrifuge tube plugged with sterile cotton and labeled; it is refrigerated until the serum is removed. Complement fixation is considered diagnostic if 4-plus after completion of the prophylactic vaccine injections, it is considered an index of immunity. It should be performed soon after completion of the customary total dosage of vaccine. If the reaction is not 4-plus, an additional 3 cc of vaccine is given and the test repeated until complete fixation occurs.

#### SEA SALT BATHS—COD LIVER OIL IN SUMMER

*To the Editor*—1. Is there any beneficial effect obtained by bathing infants and children in sea salt at home? 2. Is there any contraindication to the administration of cod liver oil to infants during the summer season?

M. D. PENNSYLVANIA

**ANSWER**—1. There is no reliable experimental or clinical evidence to indicate that there is any beneficial effect obtained by bathing infants and children in sea salt at home. It has been loosely stated that sea water has a tonic effect through its mild counterirritant action in stimulating the peripheral circulation. However, the consensus among physical therapists is that the temperature of the water, rather than the content of salt, is the significant factor determining the amount of hyperemia of the skin. A salt rub, however, preceding a bath, of course produces hyperemia of the skin.

2. There is a deep-rooted belief in the public mind that cod liver oil causes digestive disturbances in hot weather. Cod liver oil in the usual dose of one teaspoonful three times a day rarely gives rise to digestive disturbances in hot weather in infants who can tolerate it at other seasons. However, digestive disturbances such as vomiting or diarrhea would constitute a temporary contraindication to its administration at any time of the year. An infant does not require as much cod liver oil during the summer because of sun baths but at least a teaspoonful daily should be continued during the summer, because after an interruption in its administration for several months difficulty in getting the child to take it again may be encountered.

#### DIAGNOSIS OF CANCER FROM URINE

*To the Editor*—In the June 1937 edition of *Modern Medicine*, volume 5, no. 6, page 66, I note an advertisement by the William Dunkler Laboratories of Chicago in which they offer a simple and reliable clinical laboratory diagnostic set to physicians for various procedures. Among the tests which can be performed by the physician with this set is early diagnosis of cancer from urine. Can you enlighten me as to the details and reliability of this test and the technique in performing it? As a laboratory man naturally I am interested but dubious. In following recent clinical literature I have not seen reports of any such test that is out of the experimental stage.

WILLIAM COOPER, M.D. Los Angeles

**ANSWER**—The request apparently refers to the Aron test, which has been the subject of much discussion and considerable criticism. Aron has published a large number of papers, chiefly in the French journals, in which he makes the claim that the urine of those suffering from cancer when injected intravenously into the rabbit causes characteristic alterations in the adrenal gland. In the *American Journal of Cancer* are abstracts of papers by Aron and Aron, Stolz, Weiss and Kuntzmann (29:159 [Jan.], 30:164 [May] 1937), all of which are fairly favorable. Aron's latest technique is to precipitate from 1,000 to 1,200 cc of urine. The precipitate is dried in a vacuum and dissolved in physiologic solution of sodium chloride. The rabbits are then given intraperitoneal injections of 5 cc each receiving a number of such injections. On the other hand DeWitt and Coheur (abstr. *Am J Cancer* 26:212 [Jan.] 1936) find the method to be without value and the same is true of Roussy, Oberling and Guerin (abstr. *ibid* 24:867 [Aug.] 1935). Aron replies (abstr. *ibid* 24:868 [Aug.] 1935) that there are certain serious sources of error, which he hopes to remove. The changes which he notes are diminution in size and the lipid of the spongocytes. It is obvious from such contradictory statements that the method has still so many errors that it is of little use. There is no procedure in which a "simple and reliable" clinical laboratory diagnostic set will permit the early diagnosis of cancer from the urine and there is no reason to believe that there is any "simple and reliable" test for cancer in general.



## COLON BACILLUS CERVICITIS

*To the Editor*—A patient almost a year ago had an acute cystitis which proved on culture to be of colon bacillus origin. This cleared up rather promptly but almost at the same time she began complaining of backache, pain in her right side (right lower quadrant) and dyspareunia. A little later she began to have an increasing amount of discharge (She had never had any before). Usually the discharge is nothing but clear mucus but at times it is whitish. Sometimes she will have cramps and then notices considerably more discharge. Microscopic examination of the discharge shows a few epithelial cells and only one kind of organism—a gram-negative rod which I am sure is the colon bacillus. A smear from the cervix contains so many of these organisms exclusively that it looks like a pure culture. Another peculiar thing is that there has never been more than two or three pus cells per field. I am absolutely positive that the patient has never had gonorrhea but clinically it looks like low grade salpingitis. The time of onset—at the same time as the cystitis—also seems to indicate colon bacillus origin. Although I never heard of it. The patient sometimes has a low grade fever up to 100 F and once or twice a leukocytosis of 14,000. Vaginal examination reveals little except tenderness in the right fornix and pain when the uterus is moved. Is there such a thing as colon bacillus salpingitis? If there is such a thing what can I do about it or what is the treatment?

M D Ohio

*ANSWER*—Rather recently it has been suggested that chronic infection of the cervix is important in the etiology of persistent vesical discomfort and that eradication of the cervical disease is accompanied by cessation of the urinary tract symptoms. This is a rather revolutionary view, somewhat contrary to accumulated experience.

This case may belong in that group. Yet it would appear more logical to assume that infection was first present in the urinary tract, the genital infection occurring secondarily—not the reverse. Colon bacillus infection of the fallopian tubes seldom develops as an independent clinical entity. It may occur as an aftermath of instrumentation of the cervix or as a complication of stricture of the cervix. The colon bacillus is seldom found in simple gonorrheal disease of the tubes but it is usually present in cases of persistent tubo-ovarian abscess.

In treatment, adequate cervical drainage is important. It has been suggested that if there is no localized palpable mass the administration of sulfanilamide may be indicated. However, the use of this drug in miscellaneous urinary infections and mixed surgical infections without careful bacteriologic study is not to be commended and a report of the treatment of such cases without detailed bacteriologic investigation lacks scientific value. Far more evidence is needed to warrant the use of sulfanilamide for infections caused by *Bacillus coli*, *B. typhosus* and *B. paratyphosus*. If this therapy is attempted and fails, painstaking search for undrained pelvic foci should be made.

## CHRONIC RECURRENT CANKER SORES

*To the Editor*—A woman aged 25 complains of canker sores of the mouth involving the lips, the buccal surfaces, the tongue and the gums. These may be single or multiple and vary in size from 2 mm to 8 or 10 mm in diameter. They occur sporadically and are quite painful. The silver nitrate cauterizer relieves the pain and healing occurs in approximately two weeks. They have been present for at least fifteen years. Could this be a purely local phenomenon? What systemic conditions are associated with lesions of this type? There is no anemia. Elimination diets have proved ineffective. Supplemental vitamin therapy has also failed.

PAUL J. HETRICK, M.D., Wilber, Neb.

*ANSWER*—Although 'canker sores,' or aphthae were first described by Hippocrates some 400 years before the birth of Christ, accurate knowledge concerning them is still very meager. These lesions are a maculofibrinous stomatitis and the case described would seem to fall into one of two groups: (1) habitual aphthae or (2) chronic intermittent aphthae.

1. Habitual aphthae constitute the dyspeptic canker sore and have been thought by some workers to be a low grade infection and by others have been considered allergic. Deficiency of vitamin B has been mentioned as a possible cause. The fact that dietetic treatment and vitamin therapy have failed to be effective in this case would seem to place it outside this group, but the allergic possibilities should be thoroughly worked out before a definite decision is made.

2. Chronic intermittent recurrent aphthae were first described by Mikulicz in 1888 and have been called Mikulicz's aphthae. This disease occurs primarily in women and not infrequently has its onset at the time menstruation begins. It tends to recur at intervals of from four to six weeks and the lesions are quite compatible with those described in this case. Nothing definite is known concerning the etiology. Many theories have been advanced but up to the present time all of them are purely speculative. No specific treatment is known. Local treatment with 5 per cent chromic acid solution or with alum or silver nitrate is recommended. It is not wise to allow the patient to use the silver nitrate stick because crater-like scars may result.

Occasionally dermatitis herpetiformis will produce lesions of the mucous membrane of the mouth, but the associated lesions of the skin serve to make the diagnosis.

It would seem that the fifteen years duration would fairly well rule out serious systemic disease and would be a positive argument in favor of considering this as a local phenomenon, probably a case of Mikulicz's aphthae.

## DYSENTERY WITH GIARDIA

*To the Editor*—A recent patient had symptoms of dysentery. I had a stool examination made with the following report: Green product, streptococci and cysts of *Giardia lamblia* found. Literature on treatment of the latter is rather scanty—the only advice is neosphenazine. I am using napharsen 0.04 Gm every five to six days with some improvement. I will appreciate any advice you may give.

M D Michigan

*ANSWER*—Many therapeutic agents have been used in the treatment of patients harboring *Giardia lamblia*. The best opinion today supports the belief that the newer arsenicals give the best results. A procedure that has enjoyed approval is to give the patient 0.25 Gm of treparesol (meta-amino para-oxiphenyl-arsenonic acid) three times a day for four successive days. The patient then waits eight days and repeats the treatment, again waits eight days and again repeats the treatment. Under such a regimen most patients will be freed of their *Giardia* cysts at the end of the third course of treatment. It must be borne in mind that 25 per cent of patients will have some toxic manifestations caused by the arsenic, and in such cases treatment must be discontinued immediately.

It is by no means certain that *Giardia* is the cause of dysentery for there is no general agreement on this point. Evidence based on pathologic studies, or even careful clinical evaluation of cases has not conclusively demonstrated that this parasite is the cause of either diarrhea or dysentery. The presence of green-producing streptococci in feces may be considered normal since most of the enterococci produce green pigment on blood agar plates.

It is suggested that a further study of the patient should be made before concluding that the cause of the dysentery is explained by the presence of *Giardia*.

## HEREDITY OF DEAF-MUTISM

*To the Editor*—What are the hereditary possibilities for the offspring from a normal man whose parents are both deaf-mutes? M D Ohio

*ANSWER*—Hereditary deaf-mutism is almost certainly inherited as a simple mendelian recessive. If this is the case deaf-mutes are homozygous pure for the deaf-mute gene and a mating of two hereditary deaf-mutes could not produce normal offspring.

On the other hand it is estimated that only from one third to one fourth of deaf-mutes are of the hereditary sort. It is well known that many infants are born deaf as the result of prenatal infection or become deaf as the result of infantile disease. Meningitis, scarlet fever and syphilis cause many cases of deafness. This type of deafness is not hereditary. If one or both of the mated deaf-mutes is of the nonhereditary sort only normal offspring are to be expected for all would inherit the gene for normal hearing from the parent with nonhereditary deafness.

## WASTING DISEASE OF PIGEONS

*To the Editor*—There is a disease in pigeons which is characterized by wasting, paralysis and green and watery stools. It is called 'lights' or polyomeliosis. I am interested in finding out the name and dosage of the drug that is given orally for this condition. M D New York

*ANSWER*—The symptoms described are common to several pigeon diseases and similarly the term 'lights' is applied to many diseases associated with emaciation. Of the parasitic diseases that cause these symptoms two nematodes, *Ornithostrongylus quadriradiatus* or *Capillaria columbae* might be involved. The former is about half an inch in length thin, and reddish in fresh specimens. It is most numerous in the first half of the intestine and causes an acute enteritis. The second species is about an inch long of the diameter of a hair and white. Infestations are apt to be more chronic. This parasite is difficult to see unless the intestinal content is suspended in water.

Nothing is known about the treatment for these parasites. However since they are nematodes tetrachlorethylene might be of value if the infestation has not produced induration. On the basis of what is known about the dose for chicken one should

not exceed 0.25 cc of the drug. One should attempt to control these parasites by sanitation. Transmission is simple and direct, so that clean dry pens or wire floors and isolation of affected individuals should accomplish much.

There is also a bacterial disease that attacks young birds by preference and causes diarrhea and emaciation. Occasionally nervous symptoms are exhibited and not infrequently infection localizes in the joints of the wings or legs. The causative organism, a member of the paratyphoid group, is *Salmonella aertrycke*. There is, of course, no treatment, but since the infection is often transmitted through the egg, some progress can be made by eliminating the carriers detected by an agglutination test. Rigid sanitation should also be practiced.

#### DIATHERMY AND OTOSCLEROSIS—STUFFY SENSATION IN EARS

*To the Editor*—1 What is the present consensus on the value of medical diathermy applied to the ear or mastoid in the treatment of otosclerosis of the familial or hereditary type? 2 Many patients complain of a numb dead or stuffy feeling in the ear although on examination no wax is present and the ear inflates normally on the Valsalva experiment. Is there any explanation of this sensation?

M D England

*ANSWER*—1 Medical diathermy is useful for one purpose and that is the production of heat. Applied to the ear or the mastoid in the treatment of otosclerosis of the familial or hereditary type it can only produce heat and there is no evidence that heat is of the slightest use in the treatment of otosclerosis.

2 A numb dead or stuffy feeling in the ears is frequently complained of by people who are deaf. This complaint is seen just as often in those who have a perception or auditory nerve type deafness. It is possibly the patient's way of saying that things sound distant or muffled.

#### INFECTIONS OF EXTERNAL AUDITORY CANAL

*To the Editor*—I will appreciate any information on the treatment of swimmer's ear or fungous infection of the external auditory canal. I have a case that is stubborn and quite extensive. It cleared up once but recurred after about three days and was much worse than the first attack. The last attack has lasted thirteen days and there was excessive serous discharge from both ears and vesicles on the outer ear and cheek which is still present to some extent. What is the treatment and what are the chances of recurrence?

M D Nebraska

*ANSWER*—The treatment of fungous infection of the external auditory canal consists of instilling on the affected side some 2 per cent salicylic acid in 95 per cent alcohol several times a day for a week or so. As a rule, the use of these drops is highly efficient. If the fungus has penetrated through the membrana tympani to the middle ear, the condition may become more stubborn and will require more in the way of local cleansing and the instillation of medicaments. The diagnosis of fungous infection of the external auditory canal is made by microscopic examination and the demonstration of the presence of aspergilli of one type or another. The description given does not correspond to the usual appearance of otomycosis. If microscopic examination fails to demonstrate aspergilli, the case described may be considered to be streptococcal dermatosis of the ears (Mitchell, James H. *Streptococcal Dermatoses of the Ears*, *THE JOURNAL* Jan 30 1937 p 361).

#### PREPARATION AND PRESERVATION OF COCAINE SOLUTION

*To the Editor*—Please advise me regarding the best method to use in preparing cocaine solution for nose and throat work. I find that after it stands a short time a cloudy material forms.

M D Pennsylvania

*ANSWER*—Cocaine solution made from freshly distilled water with from 1 to 3 thousandths parts of tricresol added as a preservative keeps in good condition for a long time. The preservative is added because cocaine solution should not be sterilized by heat for the salt is decomposed at a temperature of 98°C. The cloudiness that appears in such solutions is probably due to mold.

#### HYPERPLASIA OF SINUSES

*To the Editor*—From x-ray examination of my sinuses a hyperplasia of all of the sinuses have been diagnosed, none being involved more than others. In stead of surgical intervention I would like your opinion on the possible application of x-rays to my sinuses. I am doubtful about surgery.

M D California

*ANSWER*—Neither the literature nor communication with accepted authorities lends any support to the idea that x-rays used in a therapeutic manner are helpful in a condition such as described.

## Council on Medical Education and Hospitals

### ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

*Thirty Fourth Annual Meeting held in Chicago  
Feb 14 and 15 1938*

*(Continued from page 1134)*

DR FREDERICK A WASHBURN, Boston, in the Chair

#### COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 14—AFTERNOON

#### Demand and Supply in the Learned Professions

WALTER M KOTSCHIG, PH D, Northampton, Mass. This article appeared in full in *THE JOURNAL*, March 26, page 941.

#### A Plan of Introduction to Clinical Medicine Some Variations in Curriculum of the Third and Fourth Years in Medical School

DR B O RAULSTON, Los Angeles. The question of how third year students may best receive their introduction to clinical work is not easily answered because of the various factors concerned. Opinion will differ from one faculty to another, and the facilities vary from one institution to another. In our school immediately following the second year, which includes six hours a week in physical diagnosis during the second semester, the whole class spends the first seven weeks of the summer (June 14 to July 31 in 1937) in the wards in the department of medicine, in the capacity of clinical clerks. They are in daily attendance from 8:30 a m to 5 p m except on alternate Saturdays and Sundays. A group of six or eight students is placed in each of seven units. The average capacity of the units is forty beds. In addition to the house staff and visiting physicians there is a half-time instructor in daily attendance on each unit whose sole responsibility is to direct and supervise the work done by the students. The abundance of material permits selection of patients to be assigned for this work. The clerk is required to do a complete "work-up," including routine laboratory work on each patient assigned to him. The instructor reads and corrects the history, checks observations in the physical examination and when these are approved by him they become a part of the permanent hospital record of the patient. Progress notes are required in accordance with the condition of the patient.

On one day each week an instructor from the department of ophthalmology visits each group of students and spends from one to two hours demonstrating conditions of the eye-grounds in patients being studied. Similar instruction is given weekly in the department of otorhinolaryngology. At the noon hour on four days each week there is a lecture for the entire class. These correspond to the course usually designated as "applied" or "pathologic physiology." There are no other set exercises. Clerks are not required to attend any formal rounds but are permitted to accompany the attending physicians on rounds if they choose. The instructors hold informal discussions with the groups concerning history writing, physical examination how to make intelligent progress notes, and many other topics that naturally arise in such work. Clerks are required to attend autopsies done on patients they have studied. While there is no assigned reading and no written discussions are required aside from those contained in the patient's record students are advised concerning sources of information related to the problems presented by their patients. At the middle of the period the groups are shifted from one unit to another. In 1937 the average number of patients worked up per student for the seven weeks was thirteen.

The chief advantage in this plan is the fact that students are permitted to study patients under careful supervision and practically without interruption for a period of seven consecutive weeks. They are unanimous in stating that they learn more during this time than in other periods of equal length in the

third or fourth years. Members of the faculty also have been well pleased with the results of this summer work, which is looked on as a continuation of the course in physical diagnosis and is considered to be a part of the second year curriculum. No defense is made against taking seven of the fifteen weeks of vacation. The remaining eight week period is more than enough.

Two factors involved in such a clerkship deserve special emphasis. First is the number of available patients in proportion to the number of students. This ratio depends on the rate of turnover and is naturally smaller in private teaching institutions where patients are selected than in charity hospitals where many patients have chronic diseases and therefore must be hospitalized for a longer time. Private hospitals find it too expensive to maintain a medical service large enough to accommodate an entire junior class as clinical clerks at one time.

During the first semester of the third year the entire junior class is assigned to clinical clerkship in the department of medicine. There is not the freedom from interruption that was enjoyed in the summer. Each group has a one hour bedside clinic four days a week at which a student presents the record of one of his patients to a senior attending physician and the other members of the group. There is a one hour set exercise at noon each day. There are four hours of lectures per week in the afternoons, and one afternoon is spent in the morgue examining fresh tissues. An instructor from the x-ray department spends from one to two hours a week with each group reviewing and discussing examinations that have been made by that department on patients studied by the group. Having had the summer work, these students are able to follow this schedule and do a complete work-up of from one and one half to two patients a week, including written directions for treatment, differential diagnoses, and one topic a week concerning some phase of the problem presented by a patient. By the end of the first semester each student will have done a complete work-up of about forty patients, in addition to his attendance at set clinics, group conferences and lectures.

In the second semester, half of the class is assigned to the department of surgery and special courses in obstetrics, the other half to special work in the department of medicine. The experience of twenty-three weeks' clerkship in medicine enables the student to carry on the work in other departments with relative ease and success.

In the summer following the junior year the class is divided into four groups, each of which spends four weeks in the outpatient department in medicine, four weeks in practical obstetrics and seven weeks as vacation. The last group in obstetrics overlaps the regular school year by one week. By this plan the students have their introduction to outpatient work in the department of medicine at a time when they have few if any other responsibilities. They have ample time in which to study their patients and to read about the diseases encountered. They are also of great value in carrying on the work of the clinic. To complete their work in practical obstetrics during the summer is to avoid continuous interruption of the fourth year work by attending deliveries at all hours of the day and night. This also meets the demands of our department of obstetrics for having the students entire time for a minimum of four consecutive weeks.

In the fourth year the class is divided into three groups. Each group spends one third of the year as clinical clerks in the department of surgery, one third in the outpatient department in medicine, including four weeks of clerkship in pediatrics, and one third in special subjects including clerkship in psychiatry, set clinics in communicable diseases, syphilis clinic and dermatology clinic. The entire class attends set exercises at noon each day.

The results obtained by giving our students their introduction into clinical medicine by way of a clinical clerkship in the department of medicine encourages the faculty to continue this procedure. Crowding of the medical curriculum, waste of time by medical students during long summer vacations, and the results obtained by using half of the usual vacation time between the second and third and between the third and fourth years of medical school appear to justify continuation of the plan in this school.

## Undergraduate Instruction in Preventive Medicine

DR J G FITZGERALD, Toronto. This article will be published in full in THE JOURNAL.

### DISCUSSION

DR JAMES N BAKER, Montgomery, Ala. The practice of medicine is becoming more and more preventive, and unless the men who take up the burden when we put it down are trained so that they can appreciate the need of integrating their activities into the various social structures that are around them they will fail in the purpose for which medicine is created. That is a challenge which is coming to the medical profession. There are many problems which have an important preventive aspect which the practitioner of medicine in his daily routine must learn to solve, and unless there is complete integration between the forces of public health per se, the official forces of public health and the medical profession, we shall both fail in performing the responsibilities that are ours.

DR W S LEATHERS, Nashville, Tenn. I think the medical schools of the United States and Canada have made considerable progress during the past twelve years in providing instruction in preventive medicine and public health. It has been my privilege to keep in touch with what has been done to some extent, and I am sure that in the next decade or so most of the medical schools in this country will provide reasonably adequate teaching in this important phase of medicine. The second point is that I am sure Dr Fitzgerald does not mean to imply that in a systematic way the outline which he presents should be followed in some kind of didactic type of instruction. He has simply presented a comprehensive discussion with reference to many points that ought to be considered by medical educators in this particular field. I think we owe him a debt of gratitude. The third point is that I think the medical schools are obligated to pay more attention to this particular phase of teaching, because of the increase in knowledge in public health during the past fifty years. We know a great deal more about how to keep well now than we did prior to that time, and, unless we translate this knowledge in terms of application in the experience and outlook of medical students, medical education will fall short of the objective which it should fulfil. In view of this remarkable development in the extension of public health, the attitude of the public toward this phase of medicine and the fine contribution which the physicians can make, the outlook in this particular field is most promising.

## Some Aims and Methods of the Undergraduate Teaching of Obstetrics

DR JAMES R McCORD, Atlanta, Ga. Too many maternal deaths occur in the United States. There seems to be no one cause or factor responsible. Permanent improvement will be difficult of achievement unless there is a parallel improvement in the teaching of obstetrics in the medical school. Administrative officials of our schools and hospitals must realize that obstetrics is a major branch of medicine and deserves equal recognition with medicine and surgery. So long as we attempt to teach obstetrics without an adequate number of obstetric patients, just so long must our students be poorly prepared to practice the obstetric art. There seems to be no substitute for the actual delivery of as many women as possible by each student. It is of vital importance that these deliveries be constantly and competently supervised. Nor should this mean the witnessing of deliveries by large or small groups of students. The mechanics of labor can be mastered only by frequent continuous observation and examination during the entire labor. Outdoor services incompetently supervised do not offer such opportunity. It should be the aim of our schools to familiarize the student thoroughly with normal obstetrics. When he starts practice he will be able to recognize quickly the dangerous and abnormal. This quick recognition is probably half the battle. It might be said that the one or two intern years are for this purpose. However actual contact with obstetric patients must be backed by certain fundamentals in teaching. If the principles are mastered the student in his actual practice will easily be able to weave in the detail. One of the serious faults of obstetric teaching is the lack of rep-

tion. This necessitates, of course enough obstetric hours. I like to teach this repetition of fundamental principles by sending the student to the board and having him explain his answer to the entire class.

At Emory University School of Medicine the course in obstetrics begins in the second semester of the second year. The student is taught the complete antepartum examination. This is done by lectures, quizzes, manikin instruction and finally the actual patient. The entire third year should be devoted to the mechanism and management of normal labor and the puerperium and to the various anomalies of mechanism. It is impossible to overemphasize this teaching. The entire class meets two hours each week throughout the year. Small sections attend the antepartum clinic and are given eighteen hours of individual instruction. Repeated examinations of pregnant women give the student confidence in abdominal palpation. The antepartum examination of many women teaches the student to become conscious of the diseases that frequently complicate pregnancy.

During the senior year it is important that the student be familiar with material that has been previously presented. We do this in several ways. The class is divided into small sections. For six weeks their entire time is devoted to obstetrics. The fundamental in this teaching is again, actual contact with many patients both in the labor wards and in the antepartum clinics. The group has a twelve hour manikin review on the mechanisms of labor and the operations of forceps and version are shown. There is sixteen hours of conference quizzes with the professor of obstetrics. Each student for eight hours every day is on active duty in the labor rooms. He delivers all normal cases and is under constant supervision. He is not allowed to leave the labor room and makes and records frequent observations and examinations of his patient. His record is a part of the hospital record. Under the supervision of an experienced labor room supervisor he is taught the preparation for vaginal examination and is required to do several. Each student delivers from thirty-five to seventy-five women. The student on inactive service for an eight hour period gives anesthesia for deliveries, does certain laboratory work of the ward, and accompanies the attending and resident physicians on ward rounds. The group has sixteen hours in the newborn service with the professor of pediatrics. They work in three antepartum clinics and one postpartum clinic weekly. One of these is an antisyphilitic therapy clinic. Intravenous arsenical therapy is given by the student under supervision. There is sixteen hours for obstetric and gynecologic pathology. Each student is furnished with a set of fifty slides illustrative of the more common pathologic conditions. The entire class has two hours weekly of lectures and quizzes. The subjects taught are the complications of pregnancy, labor and the puerperium. Examinations for promotion and graduation are individual and oral.

#### DISCUSSION

DR ANDREWS ROGERS, Columbus, Ohio. A few years ago at Ohio State we tried to put beginning obstetrics in the sophomore year, the last quarter, because at that time we wanted to introduce the juniors into the antepartum and postpartum clinics. I had to fail approximately one third of the class. There is a difference. What those few months constitute, I don't know. They associate with doctors, they associate with senior students. They do something. I had to rearrange the course. Fortunately for those who failed, the course had to be given over again so they lost no time. The next point I wish to mention is how to get more time, more material and more accommodations, such as were recommended by Dr. McCord. I got it years ago when I started at Ohio State. I worked night and day with the students' patients, group teaching and manikin instruction, and from the very first my whole plan and idea was to make it so attractive, so profitable to the future medical practitioners that they would demand and when the students demand one gets it.

#### The Teaching of Nutrition to Students of Medicine

DR SALVATORE PABLO LUCIA and NINA SIMMONS, SCD, San Francisco. This article will be published in full in THE JOURNAL.

FEBRUARY 15—MORNING

DR CHARLES GORDON HEYD, New York, in the Chair

#### SYMPOSIUM ON GRADUATE MEDICAL EDUCATION

CHAIRMAN HEYD. For the last thirty years there has been created in this country a great public opinion on medical education and, without laws, without statutory regulation, there has been a constant improvement in the quality of medical education. We look to the future with a larger labor before us, that of the continuing education of the physician after graduation and of the graduate studies. There is no particular hurry that this great topic shall be settled in a few years. If the object of eternity is to make perfection, it is obvious that we should go slowly. In this work the American Medical Association will play its part as it has in the past without any national subsidy because as the late Mr. Gladstone said, progress in medicine has been largely due to the fact that the medical profession has maintained its independence.

#### Graduate Medical Education

DR IRVIN ABELL, Louisville, Ky. Graduate education may be divided into two categories: one dealing with the preparation and training of specialists, the other dealing with the continued education of those who are not specialists. The first category may be further subdivided into (a) the kind of training which is designed to prepare one for special practice and (b) the more advanced training which may be desired from time to time in order to keep the physician abreast of the latest developments in special and general fields. Group (a) training under this category must be conducted chiefly in large cities or in large clinics with abundant material. The twelve special examining boards for the certification of specialists have now established standards of training which are mandatory for those aspiring to be diplomates. These standards demand clinical training for varying periods beyond the intern year. Hospitals and clinics under university control now supply such facilities to a limited number but wholly inadequate to meet the demands of those aspiring to such training. The immediate problem is to induce qualified hospitals to establish a system of graduate training and to stimulate the development in the medical schools of a consciousness of their educational obligation to the hospitals in their immediate communities and a willingness to enter into the graduate training program in hospitals other than their own. The Council on Medical Education and Hospitals has designated certain hospitals as approved for the training of interns and residents without, however, specifying more than elementary requirements for such and without denoting the period of time to be consumed in such training. It will clarify the situation to designate both the period of time devoted to, and the character of, intern training best suited to form the basis on which further graduate training is to be superimposed. Also to determine whether rotating internships are desirable for candidates in all the specialties or whether internships in the specialties alone best prepare the candidates for continued study and training in their respective fields. A survey of the hospitals approved for residencies shows that the period devoted to the residency varies from one to seven years, 70 per cent of the residents receive but one to two, and 30 per cent from three to seven years training. Further, that the titles of the supposed resident are confusing, they being listed as resident, junior and senior residents, assistant resident, senior and junior interns, house officer, house physician and house surgeon. Uniformity of nomenclature is desirable, criteria for the qualification of hospitals for graduate training are essential and a definitely planned schedule of training for the graduate is necessary.

The second phase of the first category, the more advanced training which may be desired from time to time to keep the physician abreast of the latest developments in his special field, will of necessity find its exposition in the postgraduate schools and in the clinics and hospitals, the staff members of which are not only proficient in their respective fields but competent and able in imparting the newer principles and procedures of their specialty. There are at present more than fifty medical schools which enroll graduate students, and of these an increasing number are planning courses for the review of both the

old and the new. Specialized hospitals and the general hospitals which are highly departmentalized, possessing an adequate average patient census comprised of the types of patients required and used for teaching purposes, can well fill this want, subject to the supervision of the Commission on Graduate Medical Education.

The second category, namely, further education for those who are not specialists, presents complex problems in aiding the doctor who desires to add to his medical knowledge and to improve his skill as a practitioner. It may be divided into two phases, intramural and extramural. The intramural phase consists of courses offered by medical schools and university connected hospitals and should include clinical experience in addition to bedside lectures and demonstrations. Such courses, organized on a basis of practical instruction, offer the best plan of elevating the standard of efficiency of the practitioner if he will but come and seek it. Of definite value are the courses offered under the auspices of the county societies and given in approved hospitals by competent staff members consisting of short series of demonstrations and clinical exhibitions covering topics which the doctor meets in his daily work. These plans necessitate the absence of the practitioner from his location and entail the expense of fees and upkeep, stipulations that many for various reasons feel unable to meet. The extramural phase, that of carrying graduate training to the practitioner, is complex and difficult. A vital objection to most of the plans now in operation is that, clinical facilities not being available, the instruction is wholly didactic. Text-book reviews are of doubtful value, while practical talks by experienced teachers possess definite utility, particularly if featured by clinical demonstrations. Each state medical association could place this phase of graduate medical education in the hands of an interested committee which would be charged with the responsibility of arranging the program of designating the centers and of selecting the clinicians. The program could be formulated with some idea of continuity so that definite subjects are assigned to stated meetings over a period of time, preferably on a yearly basis, or longer if desired. Certain cities or towns, strategically located over the state and by preference the site of a hospital or clinic, should be selected as centers with the idea of minimizing the time and inconvenience of the attendants. Clinicians to be selected from the medical schools and/or from the approved hospitals of the state should be of established reputation and competence in clinical teaching. The course or programs should be prepared with the aim of presenting the underlying and fundamental principles in each subject and their practical modern application. An interested local committee can and should provide clinical cases, which with demonstrations, illustrations and lantern slides afford the clinician the requisites for a clear and sound exposition of his subject. Conferences and round table discussions on the material presented will serve to elucidate many points and bring to the practitioner a better conception and appreciation of the difference between the old and the new. A statewide plan arranged along this or similar lines would involve no little effort but if faithfully carried out would bring to the vast majority of stay-at-homes medical education of genuine worth. To improve its standard of practice is a challenge to be met by organized medicine.

#### Opportunities for the Training of Future Internists

DR J. H. MUSSER, New Orleans. This article will be published in full in *THE JOURNAL*.

#### Continuing Professional Education

DR JAMES D. BRUCE, Ann Arbor, Mich. This article will be published in full in *THE JOURNAL*.

#### DISCUSSION

DR MORRIS FISHBEIN, Chicago. The speakers have outlined in each instance a commendable plan for the specialty that concerned them. In *THE JOURNAL* during the next twenty weeks we expect to have, each week, the plans of individual states, indicating how much graduate medical education is going on and has gone on in each state. These plans are developed largely under such systems as the one described by Dr Bruce which has been under the control of the state medical society, the university and other agencies correlated

within the state. Dr Bruce's presentation shows how it is possible for the physicians in any state, through their state medical society and their state university, to work out a suitable plan for carrying graduate medical education steadily forward. In the past thirty years the Council on Medical Education and Hospitals has spent well over a million dollars in an endeavor to raise the standards of medical education in the United States and to keep them at an exceedingly high level. That has been done out of funds contributed by the American Medical Association through the income derived from physicians and from the publications of the Association without a request to the federal government, to the state government, to any philanthropic agency or to any other body, either for funds or for direction as to how the work is to be done. It has been done with the single motive of raising the standard of medical practice and providing better medical care for all the people of the United States.

DR TORALD SOLLMANN, Cleveland. I should like to discuss a point that concerns especially the medical schools, the requirement of the basic training in the specialist's training. As the proposals existed originally they seem to contemplate set courses for research in the basic sciences for all the different specialties, which would raise great difficulties for the medical schools. There are at present, I think, ten specialty boards. If the medical schools in their basic departments are to conduct ten courses for this specialty, that specialty, and so on, it would of course require a great deal of money and considerable additions to the staff. The money is difficult to obtain at this time, and the staff is impossible to obtain. The idea seems to be going around that every one going in for the specialties should be obliged to do a bit of research. I do not believe it is a good idea. Of course, the leaders in the subject certainly should have a research background, but to force a man who is going to practice a specialty in an everyday way to do research in which he probably has no particular interest, just for the purpose of securing a certificate, is, I think, a subversion of research. The proper approach to these specialties is the apprenticeship relation, where the master in the subject guides the studies of the one who is aspiring to become a practitioner of the subject. In that case the responsibility of laying out what work in the basic sciences he should do should lie altogether with the master. He should arrange the work, and a great deal of that work could be taken without arranging special courses. Dr Abell mentioned, where the medical school affiliations were not possible, that such an approach of the master-apprenticeship relation there might be a substitute. I think that perhaps when this relation is possible the substitute may be better than what seems to be conceived by some as the ideal method. There is no best method of reaching anything of this sort. There are several approaches, and they may all lead there, according to the individual.

CHAIRMAN HELD. As one reads the history of the development of medicine one can readily determine where certain influences came in that restrained the development and progress of medicine. It was when agencies of the government legalized the control of medicine through guilds, and it was a matter of record that men were prevented from practicing medicine because they doubted the infallibility of Galen. If medical progress owes anything to influences that arose in society, it has been that the profession has been untrammelled in the development of its objectives. There seems to be an inhibitory tendency to participate in extragovernmental functions with control in every division of human activity. It will be a sad day for society when there is placed from above an arbitrary control of bureaucracy that shall determine medical thought in this country.

#### The Rural Hospital An Educational Center

DR LESTER J. EVANS, New York. This article appeared in full in *THE JOURNAL*, March 26, page 945.

#### The Role of the Hospital in Advanced Professional Training

DR A. C. BACHMEYER, Chicago. A comprehensive program for the advanced training of the physician can be formulated and properly conducted only through the cooperative efforts of medical associations, medical colleges, state medical boards,



and hospitals. The hospital should participate in a number of these activities, among which the following may be briefly enumerated: (1) The internship, (2) the residency in special services, (3) the clinic and the clinical pathologic conference, (4) the seminar, the round table or panel discussion and the staff conference, (5) the presentation of demonstrations and exhibits, (6) the lecture, either single or in series, (7) the exhibition of motion pictures, (8) the conduct of short courses of the refresher type, (9) the development of medical libraries, with lending privileges, (10) the development of laboratories for investigation and research, (11) the conduct of prolonged courses of graduate study requiring periods of residence at college and hospital.

If the standards of medical practice in the institution, small or large, do not measure up to the requirements prescribed, the hospital is not providing proper service and certainly should not be permitted to undertake educational activities. From this it would appear that our national societies are confronted with the serious and difficult task of elevating the standards of service in these many institutions.

American hospitals with some exceptions are not educational institutions. Boards of management frequently become perturbed when educational activities are proposed, though it is generally acknowledged that the conduct of clinical teaching in a hospital is a guaranty of a high standard of professional service. It should not, however, be difficult to convince hospital authorities that in supporting educational endeavors their institution will be providing a more comprehensive service to the community than if they provide only for the immediate care of the patient, no matter how fine the quality of that care may be.

There are 712 hospitals on the approved lists for intern training. These institutions provide a total of 7,167 intern positions—far more than are ordinarily required each year for the graduates of the medical colleges. Though, with few exceptions, all medical graduates are now serving internships in hospitals approved by the Council, the testimony of large numbers leads one to believe that the educational opportunities offered are far from satisfactory. The deficiency lies in the absence of an organized program of training for the intern. The situation merits particular attention for postgraduate education begins with the intern year. There is first a need for an understanding of the purpose of the internship. It is particularly during this period of the physician's career that he should be encouraged to undertake independent study and to develop his own initiative in constantly pursuing his education. Although the exigencies of practice occupy the time of many staff members, a larger number could devote more time to the needs of the intern and assist in his instruction if the necessities of the situation were brought home to them. Leadership must be provided by the staff and the local medical society.

Four hundred and thirty-eight hospitals offering 3,202 residencies in thirty-three divisions of medical practice, are approved by the Council on Medical Education and Hospitals. The Boards of Medical Specialties have developed definite requirements for training during the residency. There remains, however, great variation in the value of this training. There is need for more organization as to content of service and opportunities for professional advancement.

Though only a small proportion of the hospitals can participate in these first two steps of postgraduate education, every hospital in which medical practice is conducted on a proper plane can assist in the continued education of the physician. It is this phase of the program that requires greatest development. The local medical societies can be of great assistance. In many communities their leadership and cooperative planning will be productive of greater accomplishments than if each hospital plans for itself and endeavors to develop a program without regard to the facilities and opportunities available in other institutions.

#### DISCUSSION

DR. AUSTIN A. HAYDEN, Chicago: I was glad to note Dr. Bachmeyer's emphasis on leadership in hospital administration and in intern training and medical education. That leadership should be focused along the line of medical coordi-

nation of the various functions that hospitals and doctors are able to give the public, and to give the student as a teaching factor. The classification of hospitals which Dr. Bachmeyer used is good, but it doesn't go far enough. For instance, in rural communities there are many agencies, aside from the hospital, the small hospital as a general rule, that should be taken into consideration. It should be the purpose of the American Medical Association and the American College of Surgeons, and whatever other organizations attempt to standardize or regulate these institutions, to regulate them according to their locality and according to the possibilities for service and for regulation that they present. I think hospitals might be divided roughly into rural, urban and teaching. A rural hospital may be one or two beds up to a dozen beds in the back of a doctor's office. It is possible for that hospital to render good service, provided it renders the service it is capable of rendering from the standpoint of its physical equipment and from the standpoint of its professional personnel. I had the opportunity of visiting with Dr. William Allen Pusey in Elizabethtown, Ky., a town of about 6,000 people. Elizabethtown is a suburb really, of Louisville. Elizabethtown also has suburbs, and one of those is Millersville. To go to Millersville we had to cross three creeks. There was no bridge and we went over on a ferry boat. In Millersville there were about forty people, I imagine. There was a drug store owned by a doctor, and some hospital facilities, beds, microscopes, a considerable amount of laboratory equipment and such. Across the street was a filling station which is also an adjunct of that hospital. It has largely been made so by the publicized efforts of the American Red Cross, by which they had established certain first aid facilities, or attempted to do that, in filling stations. Here you have the filling station, the drug store and hospital constituting the immediate medical facilities and hospital facilities of that town of forty or fifty people. Those things are absolutely all right, and it would be a great injustice to the people of that community if any organization were to try to standardize things in such a way that it would discredit those small places. If you hook Millersville up with Elizabethtown, and then hook Elizabethtown up to the hard road to Louisville with proper ambulance service—the proper ambulance doesn't need to be much more than a bed in an automobile—you have immediately equipped that little inland town with pretty fair hospital service and excellent medical service. The urban hospital, in general terms, might be divided into the open staff and the closed staff, and a staff that is in between. As usual the in-between proposition greatly outnumbers either of the others. The closed staff would be represented in Chicago by institutions like the Presbyterian Hospital, where every man in attendance is a teacher at a medical school. As Dr. Bachmeyer says, the total number of beds under this classification of hospitals is small in comparison to the total number of other administered beds, but the function of that is definite in the teaching of undergraduate medical students. But the open—closed open (whatever term you like to use) hospital that has been approved is where the vast majority of interns will finally find their place. Dr. Bachmeyer properly said that the opportunities for special training in those is not to be compared with the opportunities in a larger hospital. I saw, at St. Joseph's Hospital this morning, a boy 15 years of age who woke up blind in the right eye about three days ago just out of a clear sky. With that history, the thing that occurred to me was a retinal embolism. He had a cherry macula and the retinal arterial circulation was practically blocked off. I had every intern in the hospital look into that eye. I have never seen a half dozen of those cases in my experience. I told those boys the only thing they should know about that was possibly the ability to recognize it but, more important perhaps, to have the ability and the knowledge necessary to turn that over to some one who would see a few of those cases occasionally. In other words the name, address and telephone number of a competent individual who sees such things occasionally. On the other hand in the routine things that come into hospitals in fair numbers they can be trained satisfactorily in a great many of the hospitals to which Dr. Bachmeyer has referred.

(To be continued)

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, April 2, page 1134

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS Parts I and II Examinations will be held in all centers where there is a Class A medical school and five or more candidates who wish to write the examination May 9 11 (limited to a few centers), June 20 22, and Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

#### SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Written examination for Group B applicants will be held in various cities throughout the country April 16 Oral examinations for Group A and B applicants will be held at San Francisco June 13 14 Sec Dr C Guy Lane 416 Marlboro St Boston

AMERICAN BOARD OF INTERNAL MEDICINE Written examination will be held at various centers of the United States and Canada Oct 17 Final date for filing applications is Sept 1 Chairman Dr Walter L Biering 406 Sixth Ave Suite 1210, Des Moines Iowa

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY General oral clinical and pathological examinations for all candidates (Groups A and B) will be conducted in San Francisco, June 13 14 Sec, Dr Paul Titus 1015 Highland Bldg, Pittsburgh (6)

AMERICAN BOARD OF OPHTHALMOLOGY San Francisco June 13 Washington D C Oct 8 Oklahoma City Nov 15 All applications should be filed immediately, and case reports, in duplicate, must be filed not later than sixty days before the date of examination Sec Dr John Green 3720 Washington Blvd St Louis Mo

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Chicago June 10 11 Sec Dr Fremont A Chandler, 6 N Michigan Ave, Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY San Francisco June 10 11 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

AMERICAN BOARD OF PATHOLOGY Philadelphia May 5 6 Sec Dr F W Hartman Henry Ford Hospital Detroit

AMERICAN BOARD OF PEDIATRICS New York City May 3 4 San Francisco June 12 Detroit October Rochester N Y November and Oklahoma City, November 15 Sec Dr C A Aldrich 723 Elm St Winnetka Ill

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY San Francisco, June 11 Sec Dr Walter Freeman 1028 Connecticut Ave NW Washington D C

AMERICAN BOARD OF RADIOLOGY San Francisco June 10 12 Sec, Dr Byrl R Kirklin 102 110 Second Ave S W Rochester Minn

AMERICAN BOARD OF UROLOGY San Francisco June 11 13 Sec, Dr Gilbert J Thomas, 1009 Nicollet Ave Minneapolis

### Minnesota October Report

Dr Julian F Du Bois, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, Oct 19-21, 1937 The examination covered 12 subjects and included 60 written questions An average of 75 per cent was required to pass Sixty-six candidates were examined, all of whom passed Seven physicians were licensed by reciprocity and four physicians were licensed by endorsement The following schools were represented

School	PASSED	Year Grad	Per Cent
Stanford University School of Medicine	(1936)	88 6	
University of California Medical School	(1936)	89	
University of Colorado School of Medicine	(1931)	84 5	
(1936) 86 4			
Northwestern University Medical School	(1935) 88 6	(1937)	84 5
Rush Medical College	(1936)	84 5	
88 (1937) 86 6 87 3			
School of Medicine of the Division of the Biological Sciences	(1937)	85 4	
University of Illinois College of Medicine	(1936)	91 2	
Indiana University School of Medicine	(1934)	87 6	
University of Kansas School of Medicine	(1936)	83 5	
Tulane University of Louisiana School of Medicine	(1935) 81 5	91	
Johns Hopkins University School of Medicine	(1934) 87 6	89 6	
Harvard University Medical School	(1932)	86 2	
(1934) 86 1 87 4 87 4 (1935) 85 5 89 2			
University of Michigan Medical School	(1928)	83 1	
Wayne University College of Medicine	(1935)	89 3	
University of Minnesota Medical School	(1931)	85	
(1934) 87 2, (1935) 83 4 89 3 (1936) 78 3 85 2			
(1937) 80 4 81 3 82 82 1 82 6 83 5 84 5 85 5			
83 1 85 4 86 5 87 2 88 2 88 5 90			
University of Nebraska College of Medicine	(1936)	86 6	
Syracuse University College of Medicine	(1930)	83 6	
University of Rochester School of Medicine	(1934)	84 6	
(1935) 86 1 90 6			
University of Cincinnati College of Medicine	(1932)	88 2	
University of Oregon Medical School	(1935)	88 4	
University of Pittsburgh School of Medicine	(1929)	85 3	
(1936) 86 5			
University of Texas School of Medicine	(1935)	83	
Medical College of Virginia	(1934)	84	
University of Virginia Department of Medicine	(1936)	82 6	
University of Wisconsin Medical School	(1933) 85 5	(1934)	84 2
University of Manitoba Faculty of Medicine	(1932) 88 5	(1933)	87 1
Queen's University Faculty of Medicine	(1929) 85 2	(1934)	89
McGill University Faculty of Medicine			

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity
Northwestern University Medical School	(1936)	New Jersey	
Tulane University of Louisiana School of Medicine	(1935)	Louisiana	
University of Nebraska College of Medicine	(1932)	Nebraska	
Jefferson Medical College of Philadelphia (1934) Penna	(1936)	California	
Marquette University School of Medicine	(1936)	Wisconsin	
University of Wisconsin Medical School	(1935)	Wisconsin	

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement
College of Medical Evangelists	(1937) N B M Ex		
Rush Medical College	(1937) N B M Ex		
University of Minnesota Medical School	(1937) 2 N B M Ex		
* This applicant has received the M B degree and will receive the M D degree on completion of internship			

### New Jersey Endorsement Report

Dr James J McGuire, secretary, State Board of Medical Examiners, reports 140 physicians licensed by endorsement during 1937 The following schools were represented

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement
University of Arkansas School of Medicine	(1936)	Arkansas	
Yale University School of Medicine	(1934) N B M Ex		
George Washington University School of Medicine	(1931)		
(1935) New York			
Georgetown University School of Medicine	(1933 2),		
(1934) Maryland (1935) District of Columbia,			
(1935) New York (1935 2) (1936) N B M Ex			
Howard University College of Medicine	(1926) Dist Colum		
(1933) Maryland			
University of Georgia Medical Department	(1925)	Georgia	
University of Illinois College of Medicine	(1936)	Illinois	
Indiana University School of Medicine	(1936)	Indiana	
State University of Iowa College of Medicine	(1930),		
(1935), (1936) Iowa			
University of Louisville School of Medicine (1924)	(1936 2)	Kentucky	
Tulane University of Louisiana School of Medicine	(1936)	N Carolina	
Johns Hopkins University School of Medicine	(1928)		
(1934) Maryland (1932) N B M Ex			
University of Maryland School of Medicine and College of Physicians and Surgeons	(1932)	New York	
(1935) (1936) Maryland			
Boston University School of Medicine	(1924)	New York	
Harvard University Medical School (1921) Ohio	(1923)	New York	
University of Michigan Medical School (1929)	(1935)	Michigan	
University of Minnesota Medical School	(1935) N B M Ex		
St Louis University School of Medicine	(1936 3)	Missouri	
Washington University School of Medicine	(1923)	California	
(1932) (1935) New York			
Creighton University School of Medicine	(1931)	New York	
(1935) Ohio			
University of Nebraska College of Medicine	(1928)	New York	
Albany Medical College	(1928)	New York	
Columbia Univ College of Physicians and Surgeons	(1901)		
(1928) (1935, 4) New York (1935 2) (1936)			
N B M Ex			
Cornell University Medical College	(1934)		
(1936) New York (1934) (1935) N B M Ex			
Long Island College Hospital	(1920)	New York	
Long Island College of Medicine	(1932 2)		
(1933), (1934) (1935 2), (1936 2) New York			
New York Homeopathic Medical College and Flower Hospital	(1926)	New York	
New York Medical College and Flower Hospital	(1936 3) N B M Ex		
New York University University and Bellevue Hospital Medical College	(1914)		
(1915 2) (1931 2) (1932 2) (1933) (1934 5)			
New York (1934) N B M Ex			
New York University College of Medicine (1935) N B M Ex	(1935) N B M Ex	New York	
University of Buffalo School of Medicine (1930)	(1935)	New York	
University of Rochester School of Medicine	(1935)	New York	
Eclectic Medical College Cincinnati	(1936 2)	Ohio	
Ohio State University College of Medicine	(1933)	Ohio	
Starling Medical College Ohio	(1901)	Ohio	
Hahnemann Medical College and Hosp of Philadelphia	(1926)		
(1931) (1933) (1935) Pennsylvania (1936 3)			
Maryland			
Jefferson Medical College of Philadelphia	(1920)		
(1921) (1930) Pennsylvania			
Medical College of Philadelphia	(1914)	Penns	
Temple University School of Medicine	(1931)		
(1935) New York (1933) Pennsylvania (1936)			
North Carolina			
University of Pennsylvania Department of Medicine	(1900)	Penns	
University of Pennsylvania School of Medicine	(1914)	Penns	
(1932) New York (1935) Indiana			
Woman's Medical College of Pennsylvania	(1935) N B M Ex		
McHerry Medical College	(1932)	California	
(1934) N B M Ex (1935) (1936) Tennessee			
Baylor University College of Medicine	(1921)	Texas	
University of Vermont College of Medicine	(1937)	Vermont	
Medical College of Virginia (1935) N B M Ex	(1936)	Virginia	
University of Alberta Faculty of Medicine	(1932)	New York	
Dalhousie University Faculty of Medicine	(1924)	New York	
University of Toronto Faculty of Medicine	(1911)		
Laval University Faculty of Medicine	(1932)		
McGill University Faculty of Medicine	(1935)		
Friedrich Wilhelms Universität Medizinische Fakultät Berlin	(1932) N B M Ex		
Johann Wolfgang Goethe Universität Medizinische Fakultät Frankfurt am Main	(1933)		
Medizinische Akademie Dueldorf	(1927)	New York	
Universität Leipzig Medizinische Fakultät			
Regia Università degli Studi di Pavia Facoltà di Medicina e Chirurgia	(193)		

Regia Università di Napoli Facoltà di Medicina e Chirurgia (1920)\* New York (1923) Texas  
 Licentiate of the Royal College of Physicians of the Royal College of Surgeons Edinburgh and of the Royal Faculty of Physicians and Surgeons Glasgow (1936) New York  
 University of Edinburgh Faculty of Medicine (1932) Maine  
 \* Verification of graduation in process

### Kentucky December Examination

Dr A T McCormack, secretary, State Board of Health of Kentucky, reports the written examination held at Louisville, Dec 7-9, 1937. The examination covered 11 subjects and included 110 questions. An average of 70 per cent was required to pass. Three candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
University of Louisville School of Medicine	(1937)	85	
Long Island College of Medicine	(1936)	85	
Baylor University College of Medicine	(1937)	82	

Thirteen physicians were licensed by reciprocity from September 23 through December 23. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Emory University School of Medicine	(1926)	Georgia	
Rush Medical College	(1937)	Illinois	
Johns Hopkins University School of Medicine	(1932)	Maryland	
Harvard University Medical School	(1935)	Tennessee	
University of Michigan Medical School	(1932)	Michigan	
University of Nebraska College of Medicine	(1924)	Nebraska	
Columbia Univ College of Physicians and Surgeons	(1932)	New York	
Ohio State University College of Medicine	(1932)	Ohio	
University of Cincinnati College of Medicine	(1937)	Illinois	
Meharry Medical College	(1935)	Tennessee	
Medical College of Virginia	(1931)	Virginia	
University of Virginia Department of Medicine	(1935)	Tennessee	

### Michigan October Examination

Dr J Earl McIntyre, Michigan State Board of Registration in Medicine, reports the written examination held in Lansing, Oct 13-15, 1937. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Twenty candidates were examined, 19 of whom passed and one failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Yale University School of Medicine	(1926)	82.3	
George Washington University School of Medicine	(1936)	82.6	
Loyola University School of Medicine	(1937)	80.9	84.7*
Northwestern University Medical School	(1937)	79.5*	83.1*
Rush Medical College	(1936)	87	85.2
University of Illinois College of Medicine	(1936)	82.4	
Tufts College Medical School	(1923)	85.3	
University of Minnesota Medical School	(1936)	83.4	†
Temple University School of Medicine	(1936)	86†	
University of Pennsylvania School of Medicine	(1936)	85.9†	
McGill University Faculty of Medicine	(1937)	82.2†	
University of Moscow Faculty of Medicine	(1911)	76.2†	

School	FAILED	Year Grad	Per Cent
National University of Athens School of Medicine	(1917)	55.6	

Seventy eight candidates were licensed by indorsement from August 2 through December 30. The following schools were represented:

School	LICENSED BY INDORSEMENT	Year Grad	Indorsement of
College of Medical Evangelists	(1937)	California	N B M Ex
University of California Medical School	(1929)	California	N B M Ex
Yale University School of Medicine	(1935)	California	N B M Ex
Howard University College of Medicine	(1935)	Maryland	
Emory University School of Medicine	(1936)	Georgia	
University of Georgia School of Medicine	(1933)	Georgia	
Loyola University School of Medicine	(1932)	Penna	
(1935) Illinois			
Northwestern University Medical School	(1930)	(1933)	Illinois
Rush Medical College	(1931 2)	(1932) (1935)	(1936)
(1937) Illinois			
School of Medicine of the Division of the Biological Sciences	(1935)	(1931)	Illinois
University of Illinois College of Medicine	(1931 3)	(1932) (1935 3)	(1936) (1937) Illinois
Indiana University School of Medicine	(1935 2)	(1936 2)	(1932) Indiana
State University of Iowa College of Medicine	(1934)	(1935)	(1936 2) Iowa
University of Louisville School of Medicine	(1933)	(1932)	Kentucky
Tulane University of Louisiana School of Medicine	(1933)	(1935)	Louisiana
(1933) N B M Ex			
Johns Hopkins University School of Medicine	(1933)	(1933)	N B M Ex
(1935) North Carolina	(1936)		Maryland
Harvard University Medical School	(1934 2)	N B M Ex	(1936) Texas
University of Minnesota Medical School	(1929)	(1935)	Minnesota

St. Louis University School of Medicine	(1914)	Oklahoma
(1930) Missouri	(1932) Ohio	(1936) Connecticut
Washington University School of Medicine	(1935)	Illinois
Creighton University School of Medicine	(1935) N B M Ex	
(1936) Nebraska		
University of Nebraska College of Medicine	(1927)	Nebraska
University of Rochester School of Medicine	(1936)	N Carolina
Duke University School of Medicine	(1934) N Car	(1935) N B M Ex
Ohio State University College of Medicine	(1936)	Ohio
University of Cincinnati College of Medicine	(1928),	
(1935) (1936) Ohio		
Hahnemann Medical College and Hospital of Philadelphia	(1936)	Penna
University of Pennsylvania School of Medicine	(1927)	Wisconsin
Woman's Medical College of Pennsylvania	(1936)	Ohio
Meharry Medical College	(1916) Arkansas	(1935) Tennessee
University of Tennessee College of Medicine	(1922)	Tennessee
(1933) Mississippi		
University of Virginia Department of Medicine	(1933)	Virginia
Marquette University School of Medicine	(1935)	Wisconsin
University of Wisconsin Medical School	(1927)	(1935) Wisconsin

\* This applicant has completed the medical course and will receive the M D degree on completion of internship. License has not been issued.  
 † License has not been issued.  
 ‡ Verification of graduation in process. License has not been issued.

### North Carolina December Report

Dr B J Lawrence, secretary, North Carolina State Board of Medical Examiners, reports 24 physicians licensed by endorsement at the meeting held at Raleigh, Dec 6, 1937. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Alabama School of Medicine	(1911)	Alabama	
Emory University School of Medicine	(1932)	Georgia	
Northwestern University Medical School	(1935)	Louisiana	
Indiana University School of Medicine	(1932)	(1936) Indiana	
University of Louisville School of Medicine	(1935)	Kentucky	
Tulane University of Louisiana School of Medicine	(1932)	Mississippi	
Columbia Univ College of Physicians and Surgeons	(1932)	New York	
Cornell University Medical College	(1929)	New York	
New York University University and Bellevue Hospital Medical College	(1932)	New York	
Syracuse University College of Medicine	(1905)	New York	
Duke University School of Medicine	(1934)	(1935) N B M Ex	
University of Oklahoma School of Medicine	(1936)	Oklahoma	
Hahnemann Med College and Hospital of Philadelphia	(1905)	Vermont	
Jefferson Medical College of Philadelphia	(1932)	Penna	
Woman's Medical College of Pennsylvania	(1935) N B M Ex		
Meharry Medical College	(1934)	Tennessee	
University of Tennessee College of Medicine	(1934)	Tennessee	
University of Tennessee Medical Department	(1909)	Arkansas	
Vanderbilt University School of Medicine	(1936) N B M Ex		
Medical College of Virginia	(1934)	(1935) Virginia	
University of Virginia Department of Medicine	(1932)	Virginia	

### Louisiana December Report

Dr Roy B Harrison, secretary, Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, Dec 9-11, 1937. The examination covered 12 subjects and included 100 questions. An average of 75 per cent was required to pass. Twenty-five candidates were examined, all of whom passed. Thirteen physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad	Number Passed
University of Arkansas School of Medicine	(1937)	1	
Howard University College of Medicine	(1934)	1	
Rush Medical College	(1931)	(1937)	2
University of Illinois College of Medicine	(1937)	1	
Louisiana State University Medical Center	(1936)	(1937)*	2
Tulane University of Louisiana School of Medicine	(1936)	(1936)	1
(1937 3) (1937 2)†			6
University of Minnesota Medical School	(1937)*	1	
St. Louis University School of Medicine	(1937)	1	
University of Oregon Medical School	(1937)	1	
Meharry Medical College	(1936 2)	(1937)	3
Memphis Hospital Medical College	(1908)	1	
Baylor University College of Medicine	(1937 3)	3	
University of Texas School of Medicine	(1937)	1	
University of Wisconsin Medical School	(1937)	1	

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Emory University School of Medicine	(1931)	(1931)	Michigan
State University of Iowa College of Medicine	(1928)	(1928)	Iowa
University of Louisville School of Medicine	(1927)	(1927)	Kentucky
Tulane University of Louisiana School of Medicine	(1925)	(1925)	Mississippi
(1936) New Jersey			
University of Michigan Medical School	(1931)	(1931)	Michigan
Jefferson Medical College of Philadelphia	(1935)	(1935)	W Virginia
University of Pennsylvania School of Medicine	(1925)	(1925)	Penna
(1934) California			
University of Tennessee College of Medicine	(1931)	(1931)	Mississippi
(1932) (1935) Tennessee			
Baylor University College of Medicine	(1935)	(1935)	Texas

\* This applicant has received the M B degree and will receive the M D degree and Louisiana license on completion of intern hip.  
 † Permanent license withheld pending completion of United States intern hip.

## Book Notices

**Practical Proctology** By Louis A. Bute A.B. M.D. F.A.C.S. Head of Section on Proctology The Mayo Clinic Cloth Price \$6.50 Pp 512 with 152 illustrations Philadelphia & London W. B. Saunders Company 1937

The author has followed a well made outline in his discussions and has written a volume in clear, readable English, thoroughly punctuated with his personality. He has wisely avoided the encyclopedic type of textbook, as well as historical and theoretical temptations, and has recorded his own beliefs and his proved technic. The entire subject matter has been reinforced by the statistics of a large clinic and by the assistance and cooperation of many professional associates. In this way bacteriologic topics and the chapter on anesthesia, parasitology, therapeutics and surgical technic become complete and authoritative. Few photographic illustrations are used, fortunately, the text being well supplied with excellent diagrammatic illustrations made by experts in anatomic drawing. These enhance the value of the volume notably. The author has taken pains to differentiate between anal and rectal lesions and given a clear cut terminology of fistula. The willingness of the author to question established customs and practices and his ability to devise new procedures for operations on the rectum or anus are commendable and make for progress. However, there will be those who disagree with the dicta that local and spinal anesthesia should be taboo, that an approaching abscess should not be incised until near rupture time, that the injection of a fistula tract serves no end, and that the lithotomy position should be discarded. Pruritus ani is discussed sanely and with a complete review of the accepted methods of treatment. The etiology of this condition has resisted a favorable analysis. The author has made a noteworthy attention to the alcoholic injections for a relief treatment, probably overstressing its dangers and difficulty in application. The chapter should be read by every practitioner. The discussion of ulcerative colitis is voluminous and authoritative. It represents the combined efforts of a large group and reviews thoroughly the unfinished study of a large subject begun by Hale White in 1888. The colored illustrations in this chapter are especially instructive and completes the text to the satisfaction of the enterologist and the novice in medicine. The critical reader would have enjoyed a review of some of the obscure causes of pain referable to the rectum and anus as produced by coccyodynia, sacral neuritis and the pressure of chondromas. The volume is a distinct addition to proctologic literature.

**Behind These Columns** Mellon Institute Dedication of the New Building to Science and Humanity for Andrew W. Mellon and Richard B. Mellon. Boards Pp 55 with 24 illustrations Pittsburgh Pennsylvania 1937

This volume was prepared for the dedication of the new building of the Mellon Institute last year. It comprises a historical review of the institute and a summary of the work that has been done, and a description of the building. Robert Kennedy Duncan, a scientist interested in literary work, conceived the idea that was developed with the aid of the Mellons. Duncan attended the sixth International Congress of Applied Chemistry in Rome in 1906 and came back with the basic idea. He accepted the chair of industrial chemistry at the University of Kansas and there arranged for the first industrial fellowship. His writings attracted the attention of Andrew and Richard Mellon in 1909. Later he was invited to head a department of industrial research at the University of Pittsburgh, where the industrial fellowships began operating March 1, 1911, in a frame building with funds provided by the Mellons. This experiment was followed by the founding of the Mellon Institute of Industrial Research at the university in March 1913. Duncan was authorized to design a modern headquarters with laboratory facilities, but he died before the building was completed. The institute carried on its work as a part of the University of Pittsburgh until 1927 and since then it has been managed by its own board of trustees. The building which inspired the title of the book, is a beautiful monument to the founders. Mellon Institute is one of the first institutions in this country founded to blaze the

research trail for industries. It is a nonprofit organization, although part of the burden of research is borne by funds appropriated by individual firms which finance industrial fellowships. The research is organized on a contract basis. A problem is presented by a person or company interested in its solution and the scientist needed to solve the problem is engaged by the Mellon Institute. The fellow is given the broadest facilities for accomplishing the research. The institute has demonstrated to about 4,000 American companies that properly conducted research can be productive. Since 1911 there have been 1,150 industrial fellowships on 279 different subjects. About 650 novel processes and products have been invented or developed by the fellows. Some of them have afforded sufficient basis to create new industries and others sufficient basis to build new branches of existing industries. The chrome plating of aluminum was developed to commercial applicability at the institute. Butane gas for metal cutting operations, a dental cement, a moth-proofing agent, a process for the recovery of cuprous sulfide from copper ore, improved roofing materials, better varnishes, perfection of sodium metaphosphate as a boon to laundering, a new safety fuse, a shoe leather impregnated chemically to make it better wearing and many other products were evolved by fellowship researches. The institute maintains a department of research in pure chemistry. Some of the research bearing on public health has pertained to smoke abatement, the cause of dental caries, nutrition, immunology and industrial dusts. Since 1930 the Department of Research in Pure Chemistry has studied the cinchona alkaloids in cooperation with medical scientists in some of the hospitals in Pittsburgh. Research on the treatment of pneumonia in cooperation with a hospital has been in progress. The new home of the Mellon Institute will bring to bear more intensive effort in the fields of chemistry, biochemistry and biology, as well as in the field of pure science.

**Health Insurance The Next Step in Social Security** By Louis S. Reed Cloth Price \$3 Pp 281 New York & London Harper & Brothers Publishers 1937

From the first two paragraphs in the preface to the end of this work, Mr. Reed indulges in propaganda on behalf of compulsory insurance. He admits frankly that he is a propagandist and he apparently is influenced to modify the material if it fails to fit the propaganda. When he says that the "medical profession had taken an adamant position in defense of the status quo" he is stating an untruth and he is making propaganda. The author admits frankly that there is little originality in his work and that most of it is the outcome of his association with the Committee on the Costs of Medical Care, including I. S. Falk, Harry Moore, Nathan Sinai and some of the others. Abraham Epstein has set him right on several points and Michael Davis has given him counsel and encouragement. From this array of alleged authorities in the field of medicine—not one of whom is a physician—the medical reader will know how to evaluate this work. The various employees who earned their livings from the Committee on the Costs of Medical Care during the term of its existence are continuing to turn this old material over and over squeezing the lemon to its last drop of juice. It would be a work of many hours and require a great deal of space to list carefully all the misrepresentations in this volume. For the high school students who are continuing to debate the subject of health insurance at the order of their teachers this volume should be a most useful reference work. Mr. Reed's answer to the problem of medical care is some system by which the people in the United States with incomes below \$3,000 a year will be compelled to save against the cost of sickness and will be helped by government money when the compulsion is madequate. His answer to the medical problem is therefore compulsory sickness insurance and federal subsidies. What happens to the democratic system of government under these compulsory systems does not apparently concern him. He is willing to begin slowly and he recognizes for example that any attempt to give the public satisfactory dentistry would bankrupt the system. Perhaps when an attempt is made to give all of the nation complete medical service at government expense these economists will discover that it is possible to bankrupt the nation.

**The Sex Life Before and After Marriage** By William S. Sadler M.D. Director The Chicago Institute of Research and Diagnosis and Lena K. Sadler M.D. Associate Director The Chicago Institute of Research and Diagnosis. Volume I Sexual Hygiene. Volume II Marriage. Cloth. Price \$2.95 per set. Pp. 129 133 334. Chicago American Publishers Corporation 1938.

In these two volumes the authors have given the reader a comprehensive picture of the sex function and its relationships to individual living and to marriage. In the first three chapters consideration is given to the anatomy, physiology and biology of the sex impulse, following which the authors proceed to a discussion of masturbation and autoeroticism. At this point, in chapters 5 through 8, they deal with sexual deviations, abnormalities and neuroses, and in chapter 9 with venereal diseases. This chapter is followed by a glossary, which closes the first volume. In volume II are chapters covering the art of making love, the choice of a partner, courtship, marriage as an institution, the cultural and other factors in marriage outside of sex, marital sex experiences and special problems, principal sources of marital trouble, contraception and birth control, the menopause and an expression of their opinions with relation to the modern sex problem. The treatment is complete, exhaustive and for the most part, accurate. The discussion of how sex is determined is inadequate except to a reader who understands cell structure and cell division. The same criticism applies to the description of the Aschheim-Zondek test, in which the test is attributed to the pituitary hormone instead of to the placental hormone. Under the heading of 'Venereal Disease Prevention,' recommendation is made for the use of "lysol" it would have been equally effective, and much more advisable, to use the designation saponated solution of cresol. The statements about the relationship of lactation subsequent to pregnancy are confusing, though a careful reading makes it evident that the authors wish to discredit the popular idea that lactation always prevents pregnancy. The male climacteric referred to in volume II, is not generally accepted. These should be useful and informative books for serious readers. They contain a good deal of repetition and appear to overemphasize the abnormal. Probably for the average reader the work would have been improved by greatly minimizing the references to the abnormal. The books are particularly to be commended for the conservative attitude toward Freudism, giving it due credit for contributions to methods of investigation and treatment of the neuroses but recognizing factors other than sex as a possible basis for the neuroses. The authors express a philosophy which endorses the monogamous conception of marriage and yet at the same time display a broad sympathy for individuals whose sexual problems and urges bring them into conflict with society. Their chapter on contraceptives properly emphasizes the one inescapable fact that there is as yet no completely reliable contraceptive method except abstinence.

**The Laboratory Diagnosis of Syphilis. The Theory, Technic and Clinical Interpretation of the Wassermann and Flocculation Tests with Serum and Spinal Fluid** By Harry Eagle M.D. Lecturer in Medicine Johns Hopkins University Medical School Baltimore. With foreword by J. Farlo Moore M.D. Associate in Medicine Johns Hopkins University Baltimore. Cloth. Price \$5. Pp. 440 with 27 illustrations. St. Louis, C. V. Mosby Company 1937.

In his attack on the rather considerable task to which he set himself (as detailed in the subtitle) the author of this monograph maintains a high degree of objectivity. He does not attempt to 'prove' anything and thus succeeds in establishing a body of carefully documented facts and skilfully drawn conclusions which should be of great service to the practicing clinician and serologist, and of use to the investigator. The text is composed of a historical introduction six parts and five appendices, and concludes with a selected bibliography of approximately one thousand titles. Parts I and II deal with the basic physicochemical phenomena which underlie the application of the complement fixation test and the flocculation phenomenon to the serodiagnosis of syphilis. Each part ends with a description of acceptable techniques for performing the respective types of test. In addition part II contains a searching critical examination of the methods for choice of an optimum flocculation test, with a succinct summary. Part III is devoted to methods of examination of the cerebro-spinal fluid and in

part IV the author deals briefly with a variety of miscellaneous laboratory tests for syphilis. Parts V and VI are given to discussion of the clinical evaluation of serologic reports both from the point of view of the theoretical considerations involved and with regard to the statistical results of the competitive serologic conferences.

This routine description of the contents of Dr. Eagle's monograph gives no idea of its true worth. It is unique in that in a single volume it deals both with the laboratory and with the clinical aspects of the serodiagnosis of syphilis. This may seem of small importance until one remembers that there are few clinical syphilologists who are competent serologists and that there are almost no avowed serologists who are competent clinicians. Then the consummate value of this monograph becomes apparent. Here for the clinician are simple methods for judging the reliability of the serologic laboratory on which he depends and authoritative advice on the interpretation of the reports of serologic tests for syphilis. The practicing serologist will find quite as much of value. The chapters on technic are based on the personal experiences of the author and are presented without bias. There is a full index.

**Eyestrain and Convergence** By N. A. Stutterheim M.D. Part Time Ophthalmic Surgeon to the Johannesburg School Clinic. Transvaal Education Department. Cloth. Price 7s. 6d. Pp. 89 with 2 illustrations. London H. K. Lewis & Co. Ltd. 1937.

For a number of years the author, through the pages of the *British Journal of Ophthalmology*, has reported studies on the ocular musculature in their relation to the position of the eyes and as to convergence. The present volume is aimed to provide a method of treatment for the common complaint of eyestrain. This method is not to be thought of as an additional procedure to the procedures already available but is initiated as a long overdue reform. The author states that the principles of this new method are based on physiology and leaves it to his medical colleagues to decide whether it is worth. The need for this new idea is based on the premise that, in spite of the complaint of eyestrain, modern methods of refraction and muscle therapy yet leave many persons, more especially those seen in private practice, with no relief from their symptoms of eyestrain. Evidently this is true in South Africa. The new concept deals with the kinetic factor of binocular vision. The static factors (so called) of errors of refraction and muscular balance are rejected as far as their traditional concepts are concerned. The soundness of this new kinetic binocular consideration and the principle of kinetic treatment are established by the undeniable and consistently good results in more than a thousand cases. The importance of convergence is brought forward by a discussion of its center in the midbrain and a citation of its prominence in the animal world. Stutterheim believes that the convergence is based rather on a tensor system than on contraction and inhibition of antagonistic muscles. This theory is exemplified by the good convergence when the external rectus is practically absent and by some of Sherrington's experiments. The primary position is conceded to be one in which the two eyes are slightly divergent. The author shows that there is a difference in voluntary adduction of the eyes and kinetic convergence. The term "asthenovergence" is used to denote the difficulty found in persons complaining of eyestrain. The method of testing for this defect is as follows: "In the examination of cases of eyestrain, insufficiency of convergence which I have called asthenovergence, is regularly found. The person is tested for power range of convergence while sitting opposite a black cloth 4 feet square at a distance of 5 or 6 meters. In the center of the cloth an oblong strip of white cardboard 75 by 10 cm. is fixed and serves as the object of vision. It is placed in the vertical position in the tests for horizontal convergence and in the horizontal position in the tests for vertical convergence. The tested person's head is supported by a rest for the chin and one for the forehead. Into the forehead rest a trial frame is fixed for holding the single prisms. The test is done by successively placing prisms of increasing strength (but not re-olung prisms) in front of the eyes until the images no longer merge but remain apart. The difference between the separate prisms I use for the tests on horizontal convergence is 1 degree of prism, for the tests



on vertical convergence it is  $\frac{1}{4}$  degree of prism. When the images no longer merge, the preceding number of prisms is taken as the result of the test."

Elschnig has established the normal range of convergence as 50 degrees of prism. The symptoms of eyestrain are multiple. In many persons amblyopia, visual field contractions or migraine may be some of the symptoms, and these are relieved by treatment of the asthenovergence. The test and treatment advised are the use of a battery of prisms increasing by diopters for horizontal deviations and by 0.25 diopter for the vertical. Many sittings are often necessary to increase convergence to a degree at which symptoms of eyestrain are relieved. The results obtained in 100 cases of eyestrain are noted. Increase of convergence from 7 to 10 degrees up to 70 or 80 degrees is not unusual. An adequate number of typical cases are discussed in detail. The value of the method and the author's enthusiastic results may be gaged when others have had the opportunity to try the procedure. The physiologic cure of such conditions as amblyopia, migraine and contracted visual fields must be regarded with a degree of question. Nineteen references in the literature are given, and an adequate index closes the volume.

**Income and Expense Record of Doctor**  
for the year from 1933 to 1934  
Cloth Price \$3 Pp 52 Michigan City Indiana Hill Publishing Company 1932

This comprises printed forms on which to keep the monthly accounts of cash payments. There is a sufficient number of these forms, it is assumed, to last for one year, there are also other forms for monthly accounts of cash receipts and earnings, with space for summarizing the miscellaneous receipts of the month, and the amount of cash services and the amount received on account. Accompanying the bound set of forms are pads of unbound and simpler printed forms on which to record daily cash receipts and earnings and at the same time show whether any new business was cash or charge and whether it was a miscellaneous item. These forms were prepared especially for physicians who do not desire a more complicated system of bookkeeping. It enables the physician to determine from day to day and from month to month the net result of his practice and other interests. There are instructions about how to make the entries. The requirements of the federal income tax laws have been kept in mind, so that the preparation of the income tax return will be made simpler.

**Diathermy Including Diathermotherapy and Other Forms of Medical and Surgical Electrothermic Treatment** By ELIN P. CUMBERBATCH, M. A. B. M. D. M. R. C. Medical Officer in Charge of Electrical Department and Lecturer on Medical Electricity St. Bartholomew's Hospital London. With nine collaborators. Third edition. Cloth Price \$6 Pp 576 with 170 illustrations. Baltimore: William Wood & Company 1937.

Since the publication of the second edition of Cumberbatch's *Diathermy* in 1928, considerable advance has been made in the medical and surgical uses of high frequency currents and there has been added the newer form of electrothermic treatment recognized in the United States under the name of short wave diathermy. To cover this progress Cumberbatch has added 244 pages to his volume and has enlisted the aid of nine collaborators.

There are three main parts of the volume, the first including history and the physical and electrotechnical principles, the second medical electrothermic methods and the third surgical electrothermic methods. In the first part a chapter on physical principles by the physicist H. J. Taylor contains besides much pertinent information about the newer forms of high frequency currents also a multitude of formulas and equations of possible interest only to physicists. In the second part chapters of special contributors deal with diathermy in gynecology and in chronic arthritis, in diseases of the cardiovascular system in treatment of dementia paralytica and in ophthalmology. There is a critical and fairly exhaustive chapter on the physical and clinical aspects of short wave diathermy under the admittedly inexact heading of short wave treatment. According to Cumberbatch's comparative studies, "in disease that is not deeply situated there appears to be little difference between the results of diathermic treatment and that obtained by short

waves, although the technic practiced renders the latter more comfortable for the patient and much easier for the practitioner. A special chapter is devoted to the subject of inductothermy. In the third part of the volume, comprising almost 200 pages, there are chapters by collaborators on electrosection and on electrosurgery in malignant disease of the upper air passages, for the destruction of the tonsils, for prostatic obstruction and in ophthalmology, and chapters by the author covering the other fields.

The volume is well illustrated, is written in a fluent style and contains many references to American clinicians and methods. It is a valuable contribution of a leading English authority and is of practical interest to both beginners and experts in the field of medical electricity.

**Hilfsbuch für raum und aussenklimateische Messungen mit besonderer Berücksichtigung des Kathathermometers** Von Franz Bradtke und Walther Liese. Paper Price 7.50 marks Pp 100 with 30 illustrations. Berlin: Julius Springer 1937.

This volume is designed as an aid to the practicing hygienist and to heating and ventilating engineers, in addition to the answers given to medicometeorological and bioclimatic questions. In addition to the main considerations of heat, of various kinds and degrees, as related to the comfort of the individual while indoors, some consideration is given to outside climatic conditions. The main value of the book lies in two directions. First, a clear though brief outline of the biophysical influences affecting bodily comfort. Such factors as temperature sensation, production of heat, chemical and physical heat regulation, heat losses, influence of moving air, moist air, radiant heat, pigmentation, ionized air, and dust in air are considered. Second, and most comprehensive, is the discussion of the various factors in relation to the means for attaining practical measurement. One section is devoted to such matters as wet and dry thermometers, psychrometry, equivalent temperature, effective temperature, resultant temperature and radiant heat, with a concomitant discussion of such instruments as the psychrometer, the protimeter, the eupatheoscope, the globe thermometer, the homotherm and the weather "frigorimeter." The differences in meaning between the various terms is aptly illustrated by the elucidation of the uses of the various instruments. Special emphasis is laid on the working and use of the katathermometer. The discussion on this subject is valuable to any one interested in measurements by means of the katathermometer. The theoretical aspects of the instrument are carefully considered, though the practical use of this section would be of more interest to one interested in the physical sciences. However, the actual measurements and methods of use in various situations are covered in detail, so that a variety of interest is engaged. Another good point is the listing of the minimal equipment needed for determining room and outside air conditions. The voluminous detail should again be noted, as such information is not usually given clearly enough to be of value to those just entering into this field. In its entirety this book should prove to be a valuable aid to those who have any interest in the subject of air conditioning and the effects of surrounding influences on the human body.

**The Physician's Business: Practical and Economic Aspects of Medicine** By George D. Wolf, M.D., Attending Otolaryngologist, Sydenham Hospital, New York City. Foreword by Harold Ryplins, A.B., M.D., F.A.C.P. Cloth Price \$5 Pp 384 with 57 illustrations. Philadelphia: New York, Montreal & London: J. B. Lippincott Company 1933.

The author discusses many of the practical business matters of medical practice which are important especially to young physicians. Obviously the physician gives first consideration to the care of his patients, often he finds little time remaining to keep the business side of the practice in good order. The author aims to counsel and to place at the disposal of physicians much practical information of this kind. He advises concerning the selection of a location and the equipment of an office. He discusses such ethical questions as obligations to patients, relations to his colleagues and to consultants and hospital and dispensary affiliations. He reproduces actual reports of consultants to family physicians concerning examinations that have been made of patients. He points out the advantage to physicians of becoming affiliated with their county medical societies.

and the American Medical Association. He gives advice about the preparation of medical papers, public addresses and radio talks. The chapter on "The Doctor and His Patient" includes a discussion of medical fees and of the daily records that a physician should keep. In this chapter is a section entitled "Instructions to Patients." The author believes one should give written, rather than oral, instructions to patients whenever practicable. Among these typewritten instructions are some entitled "Care of the Baby," "Anticonstipation Diet," "Obesity Diet" and "Scabies," under which he has seven points instructing the patient how to get rid of this malady. Other typewritten instructions to patients include setting up exercises illustrated by simple drawings, massage, how to prepare a turpentine stupe, flaxseed poultice and mustard baths. There are instructions on how to irrigate the nose, throat ear and eye, how to give proctocolysis and hypodermic injections, how to set up trays for various operations, what to include in a blood transfusion set and an obstetric case and what equipment is necessary to perform a hemorrhoidectomy and a circumcision. There is a chapter on forensic medicine and another on the income tax, showing how to keep records which make easier the preparation of the income tax return. There is a brief chapter on the current trends in medical practice and a discussion of economic evils of the present day. The book contains much information that will help especially young physicians.

*Beitrage zur Entwicklung der Strukturen und Kreuzungen im Zentralnervensystem*. Von Professor Dr. Dollken. Boards. Price 5.80 marks. Pp. 69 with 51 illustrations. Leipzig: Georg Thieme 1937.

The author discusses briefly the various decussations and commissures of the central nervous system from the standpoint of embryologic development, physiology and anatomic structure. The eye and the optic nerve are considered, as by Cajal and others, to be the primary factor which is the basis of other decussations and commissures of the central nervous system. Commissures are present not only as gross elements of fiber tract structure but also in the histologic elements as networks, commissures and decussations within individual nerve cells and also of individual nerve fibers. The phylogenic relationship between primitive nerve network in lower animals with the network in parts of the higher vertebrates is discussed briefly. The latter half of the monograph is devoted largely to the embryologic development of the nuclei and tracts of the cranial nerves. The monograph is well illustrated and has a full bibliography, which, however, is not so extensive as to include too many minutiae.

*Practical Neuroanatomy. A Textbook and Guide for the Study of the Form and Structure of the Nervous System. Adapted to the Needs of the Student and Practicing Physician*. By J. H. Globus, B.S., M.D., Associate Professor of Neuroanatomy, New York University. Cloth. Price \$6. Pp. 387 with 148 illustrations. Baltimore: William Wood & Company 1937.

After years of teaching his subject to medical students, the author, a well known neuropathologist and neuroanatomist, has incorporated his material in this book. He explains clearly and adequately the difficult subject in its broad outlines and the book has many beautiful illustrations. The anatomic explanations are unusually clear and understandable. In a separate section, details of neuropathologic staining techniques are briefly described. At the end of the book outlines for student drawings are printed on perforated pages so that they can be detached. These are especially useful for medical students. The work is highly recommended for its purpose in teaching students neuro anatomy.

*Skin Diseases in General Practice. Their Recognition and Treatment*. By H. Haldin Davis, D.M., M.A., F.R.C.P., Consulting Dermatologist to the Royal Free Hospital, London. Third edition. Cloth. Price \$6.25. Pp. 400 with 97 illustrations. New York & London: Oxford University Press 1937.

This concise and practical treatise makes no pretense at being a complete textbook of dermatology and within the limits set by its author it fulfils its purpose. The arrangement of the diseases of the skin according to their topographic distribution follows the plan of Sabouraud's *Dermatologie topographique* and is of value for ready reference. There is of course some unavoidable overlapping in the consideration of those diseases which may appear anywhere on the body. Due emphasis is

given the recent therapeutic advances, particularly the use of gold compounds in erythematous lupus and the modern methods of applying radium in cutaneous cancer. X-ray dosage is still expressed in "pastille" doses. There may be a valid objection to such statements as "In the treatment of acne vulgaris a dose should be given a little short of a pastille dose." Most American dermatologists advise smaller doses at weekly intervals. The illustrations are numerous and well selected and those in colors are particularly good. The format of the book is excellent and the practitioner will find the diagnostic and therapeutic side of the subject adequately covered in spite of the omission of histopathology and of the rarer skin diseases.

*Modern Treatment in General Practice. Volume III*. Edited by Cecil P. G. Wakeley, D.Sc., F.R.C.S., F.R.S.E., Senior Surgeon, King's College Hospital, London. Cloth. Price \$4. Pp. 436 with 70 illustrations. Baltimore: William Wood & Company 1937.

This is the third volume, entitled "Modern Treatment in General Practice," which has been assembled by the editorial staff of the *Medical Press and Circular* from articles published in that periodical by well known men in the British Isles. There are fifty-one articles in this volume and there seems to be no special connection between them except that all emphasize diagnosis and treatment. The first one, by Gordon-Taylor, is entitled "The Surgical Treatment of Cancer of the Stomach." The fortieth article, for example, is by James Maxwell, entitled "Treatment of Asthma," and the last article is by Leonard Williams, entitled "Dietetic Essentials in General Practice." Those interested will find in the front of the volume a list of the articles and the authors of both volume I and volume II.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Compensation of Physicians. Value of Services not Dependent on Saving Patient's Life**—A physician operated on Charles Smith at the University of California Hospital, in San Francisco. The patient died and the physician assigned his claim for fees to one Baird, who brought suit against Smith's widow in the municipal court of San Francisco. That court granted a motion by the widow to transfer the cause to her home county, Butte. At the trial there the plaintiff moved that the cause be retransferred to San Francisco for the convenience of witnesses. Affidavits were presented tending to show that a trial in San Francisco would accommodate fifteen named witnesses, all of whom were physicians, or employees of the hospital previously referred to, and none of whom could attend a trial in Butte County without great loss and inconvenience to themselves and to the hospital. The affidavits further stated that all witnesses were familiar with the facts and would testify as to the value of the services performed. The defendant filed two counter affidavits based on information and belief. One affidavit alleged that it would be necessary to call as witnesses on behalf of the defendant four physicians of Butte County who would testify that the patient's ailment was necessarily fatal, that the performance of the operation in question was useless and that therefore the services rendered were not worth the sum demanded. The other affidavit merely alleged that each and every witness mentioned in the plaintiff's affidavits was not a necessary or proper witness and would not be qualified to testify as to the value of the services. The superior court of Butte County denied the plaintiff's motion for retransfer to San Francisco and the plaintiff appealed to the district court of appeal, third district, California.

The trial court abused its discretion in denying the application, said the appellate court. The convenience of witnesses and the interest of justice required a change of venue to San Francisco. Furthermore, the affidavits presented by the defendant failed to indicate any competent evidence of material facts to be testified to by any physician in Butte County who would be inconvenienced by retaining the trial in that county. One affidavit

merely named four physicians who would testify as to the character and value of the services. The fact that these physicians would testify that the operation was useless and ineffectual to save the life of the patient was not material to the issue of the case. Ordinarily the value of a physician's service is not dependent on saving the life of a patient. The skill of the greatest surgeons in the world is sometimes futile. The court also believed that the counter affidavits of the defendant were worthless or of little value because they were based on information and belief and stated mere conclusions without stating facts on which the conclusions were based.

For the reasons stated the district court of appeal directed the superior court of Butte County to grant the motion for change of venue to San Francisco—*Baud v Smith (Calif)*, 68 P (2d) 979

**Workmen's Compensation Acts Physician Not Authorized to Treat Compensation Cases May Not Collect Fee**—The workmen's compensation law of New York was amended in 1935 so as to provide that medical care under the act may be rendered only by physicians authorized so to do by the state industrial commissioner. The plaintiff, a licensed physician, at the request of the defendant an employer rendered medical care to a workman injured in the course of his employment. Subsequently he sued the employer for the value of his services but failed to allege that he was authorized by the industrial commissioner to render medical care. The trial court for that reason dismissed his suit. The supreme court of New York, appellate division, affirmed the dismissal (*Szold v Outlet Embroidery Supply Co Inc* 248 App Div 865, 291 N Y S 395, abstracted, *THE JOURNAL*, May 15, 1937, p 1743), and he appealed to the Court of Appeals of New York.

It was not unreasonable, said the court for the state to declare a man to be a competent physician by licensing him to practice medicine and then to impose the additional requirement of a special authorization if the patient happens to be a workman suffering from accidental injuries, arising out of and in the course of his employment. The presumption is that the legislature inquired and found the need of special training or fitness for the treatment of compensable industrial injury and occupational disease. The act in providing that no physician may be authorized by the commissioner to treat workmen's compensation cases unless recommended by a medical society or by a board composed of physicians did not deny the plaintiff due process of law nor unlawfully delegate legislative power to nongovernmental agencies. The provisions in the act designed to control the amounts to be awarded for medical services, said the court, constituted a legitimate exercise of the police power of the state. The medical care which the employer must furnish is part of the statutory compensation of the workman. It may well have been conceived that the minimum fee requirement would effectively put a stop to unwholesome competition for opportunity to treat employees and that it would also attract the more skilful and experienced physicians into the field. Power exists, said the court, to assure full delivery of workmen's compensation to be awarded in money. The power to say that compensation in the form of medical care shall be adequate in quality is not essentially different.

To the contention that the 1935 amendments were unconstitutional in that they made voluntary medical societies new departments of the state government and that compulsory arbitration of the value of medical services contravened the constitutional right of jury trial, the court referred to the following provisions of the state constitution authorizing the enactment of a workmen's compensation act: "Nothing contained in this Constitution shall be construed to limit the power of the Legislature to enact laws for the protection of the lives, health, or safety of employees or for the payment by employers

either directly or through a State or other system of insurance or otherwise, of compensation for injuries to employees or for the adjustment, determination and settlement with or without trial by jury, of issues which may arise under such legislation.

The judgment of the lower court against the plaintiff was affirmed—*Szold v Outlet Embroidery Supply Co Inc (N Y)*, 3 N Y (2d) 878

## Society Proceedings

### COMING MEETINGS

- Alabama Medical Association of the State of Mobile Apr 19 21 Dr D L Cannon 519 Dexter Ave Montgomery Secretary  
American Association for the Study of Neoplastic Diseases Atlanta C. Apr 14 16 Dr Eugene R Whitmore 2139 Wyoming Ave NW Washington D C Secretary  
American Association of Anatomists Pittsburgh Apr 14 16 Dr G W Corner 260 Crittenden Blvd Rochester N Y Secretary  
American Association of Genito Urinary Surgeons Atlantic City N J May 2 4 Dr Henry L Sanford 1621 Euclid Ave Clerh 1 Secretary  
American Association of Pathologists and Bacteriologists Atlantic City N J May 3 4 Dr Howard F Karsner 2085 Adelbert Road Cleveland Secretary  
American Association of the History of Medicine Atlantic City N J May 2 Dr E J G Beardsley, 1919 Spruce St Philadelphia Secretary  
American Association on Mental Deficiency Richmond Va Apr 20 21 Dr E Arthur Whitney, Washington Road Elwyn Pa Secretary  
American Bronchoscopic Society Atlantic City N J Apr 30 Dr Lyman Richards 319 Longwood Ave Boston Secretary  
American Gastro-Enterological Association, Atlantic City N J May 1 Dr Russell S Boles 1901 Walnut St Philadelphia Secretary  
American Gynecological Society, Asheville N C May 30 June 1 Dr Richard W Telinde 11 East Chase St Baltimore Secretary  
American Laryngological Association Atlantic City N J May 2 4 Dr James A Babbitt 1912 Spruce St Philadelphia Secretary  
American Laryngological Rhinological and Otolological Society Atlantic City N J Apr 27 29 Dr C Stewart Nash, 277 Alexander St Rochester N Y Secretary  
American Neurological Association Atlantic City N J May 26 Dr Henry A Riley, 117 East 72d St New York Secretary  
American Orthopedic Association Atlantic City N J May 35 Dr Ralph B Gormley 110 Second Ave SW Rochester Minn Secretary  
American Society for Clinical Investigation Atlantic City N J May 2 Dr J M Hayman Jr 2065 Adelbert Road Cleveland Secretary  
American Surgical Association Atlantic City N J May 2 4 Dr Charles G Mixer 319 Longwood Ave Boston Secretary  
Arizona State Medical Association Tucson Apr 21 23 Dr D F Harbridge 15 East Monroe St Phoenix Secretary  
Arkansas Medical Society Texarkana Apr 18 20 Dr W R Brookshire 602 Garrison Ave Ft Smith Secretary  
Association of American Physicians Atlantic City N J May 3, Dr Hugh J Morgan Vanderbilt University Hospital Nashville Tenn Secretary  
California Medical Association Pasadena May 9 12 Dr F C Warnsbury 450 Sutter Street San Francisco Secretary  
Conference of State and Provincial Health Authorities of North America Washington D C Apr 9 11 Dr A J Chesley Minnesota State Office Bldg St Paul Secretary  
Congress of American Physicians and Surgeons Atlantic City N J May 3 4 Dr John T King Jr 1210 Eutaw Place Baltimore Secretary  
Connecticut State Medical Society Groton June 12 Dr Creighton Barker 258 Church St New Haven Secretary  
District of Columbia Medical Society of the Washington May 4 5 Dr C B Conklin 1718 M St NW Washington Secretary  
Florida Medical Association Miami May 9 11 Dr Shaler Richardson 111 W Adams St Jacksonville Secretary  
Georgia Medical Association of Augusta Apr 26 29 Dr Edgar D Shanks 478 Peachtree St N E Atlanta Secretary  
Hawaii Territorial Medical Association Honolulu May 20 22 Dr Douglas B Bell Dillingham Bldg Honolulu Secretary  
Illinois State Medical Society Springfield May 17 19 Dr Harold W Camp, Loh Bldg, Monmouth Secretary  
Iowa State Medical Society Des Moines May 11 13 Dr Robert I Parker 3510 Sixth Ave Des Moines Secretary  
Kansas Medical Society Wichita May 9 12 Mr C C Munns 112 West Sixth St Topeka Executive Secretary  
Louisiana State Medical Society, New Orleans May 2 4 Dr P T Talbot 1430 Tulane Ave New Orleans Secretary  
Maryland Medical and Chirurgical Faculty of Baltimore Apr 26 2 Dr Walter Dent Wise 1211 Cathedral St Baltimore Secretary  
Massachusetts Medical Society Boston May 31 June 2 Dr Alexander S Begg, 8 The Fenway Boston Secretary  
Mississippi State Medical Association Jackson Apr 19 21 Dr T M Dye McWilliams Bldg Clarksdale Secretary  
Missouri State Medical Association Jefferson City May 2 4 Dr E J Goodwin 634 N Grand Blvd St Louis Secretary  
Nebraska State Medical Association Lincoln Apr 26 28 Dr R B Adams Center McKinley Bldg Lincoln Secretary  
New Hampshire Medical Society Manchester May 17 19 Dr Carleton R Metcalf S South State St Concord Secretary  
New Jersey Medical Society of Atlantic City May 17 19 Dr Alfred Stahl 55 Lincoln Park Newark Secretary  
New York Medical Society of the State of New York May 9 11 Dr Peter Irving 2 East 103d St New York Secretary  
North Carolina Medical Society of the State of Pinehurst May 2 4 Dr T W M Long Roanoke Rapids Secretary  
Northern Tri State Medical Association Findlay Ohio Apr 12 Dr Robert H Elrod 1920 Jefferson Ave Toledo Ohio Secretary  
Ohio State Medical Association Columbus May 11 12 Mr C S Sedgwick 79 East State St Columbus Executive Secretary  
Oklahoma State Medical Association Muskogee May 9 11 Dr L S Willour Third and Seminole McAlester Secretary  
Philippine Islands Medical Association Zamboanga City Apr 2 29 Dr A S Fernando 817 East Ave Manila Secretary  
Rhode Island Medical Society Providence June 1 2 Dr Guy W Weller 124 Waterman St Providence Secretary  
Society for the Study of Asthma and Allied Conditions Atlantic City N J Apr 19 Dr W C Spain 116 East 531 St New York Secretary  
South Carolina Medical Association Myrtle Beach May 17 19 Dr E A Hines Seneca Secretary  
South Dakota State Medical Association Huron May 9 11 Dr Clara F Sherrard 1021 Egan Ave S Madison Secretary  
Tennessee State Medical Association Nashville Apr 12 14 Dr H H Shoulders 706 Church St Nashville Secretary  
Texas State Medical Association of Galveston May 9 12 Dr H H Taylor 1404 West El Paso St Fort Worth Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1927 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Diseases of Children, Chicago

55 2:1 454 (Feb.) 1938

- Relation of Endocrine Disturbances to Certain Heredodegenerative Symptoms J Warkany and A G Mitchell Cincinnati—p 251
- \*Cardiac Complications of Acute Hemorrhagic Nephritis M I Rubin and M Rapoport Philadelphia—p 244
- \*Cryptorchidism Treated with Gonadotropic Principle J A Bigler Highland Park Ill L M Hardy Chicago and H V Scott Fort Wayne Ind—p 273
- Mental Growth of Epileptic Children I N Kugelmaass Louse E Poull and J Rudnick New York—p 295
- Influence of Lethargic Encephalitis on Intelligence of Children as Determined by Objective Tests A W Brown R L Jenkins and Lillian E Cisler Chicago—p 304
- Studies of Fetal Respiratory Movements II Recording Methods B E Bontr and C Fenning Salt Lake City—p 322
- Pathologic Background of Cerebral Diplegia B J Alpers and E Marcovitz Philadelphia—p 356
- Stuttering Problem and Suggested Treatment I W Karlin and L Kennedy Brooklyn—p 383

**Cardiac Complications of Hemorrhagic Nephritis**—Rubin and Rapoport investigated the status of the heart of fifty-five patients with acute hemorrhagic nephritis. Fourteen children (two deaths from acute cardiac failure) with varying degrees of cardiac involvement during the acute stage of their illness have been encountered. Further analysis of these fifty-five patients revealed rather unexpectedly that cardiac involvement was the most frequent accompanying complication of acute hemorrhagic nephritis. The clinical evidences of cardiac involvement and failure observed in the cases were (1) dyspnea, tachypnea and cough, (2) cardiac enlargement, demonstrable both by physical examination and in teleroentgenograms, (3) muffled heart tones, (4) rapid heart rate, (5) murmurs, usually a mitral systolic murmur, (6) gallop rhythm, (7) enlargement and tenderness of the liver, (8) engorgement of the venous system (9) pulmonary edema, (10) peripheral edema and (11) electrocardiographic changes indicative of varying degrees of myocardial damage. During the acute phase of the disease two factors are operative which may affect the heart adversely: myocardial damage and increased peripheral vascular resistance (hypertension). With regard to myocardial damage, it is possible that the same infective agent responsible for the acute nephritis damages the heart. Hypertension (which is evidence of increased peripheral resistance brought about by vasospasm) is the agent immediately responsible for the impairment of cardiac function. Hypertension has been present in all the patients with acute hemorrhagic nephritis exhibiting signs of cardiac insufficiency. In those cases in which the heart is primarily involved by the disease it is likely to fail under the added load of a sudden increase in peripheral resistance. Whether or not cardiac failure results is dependent on the extent of the myocardial damage and the degree of hypertension. The only deaths in the entire group of fifty-five nephritic patients were due to cardiac failure. The authors administered magnesium sulfate by intramuscular injection using a dose of 0.2 cc of a 50 per cent solution per kilogram of body weight. The effects of a single dose are usually prompt. Fluids should be restricted in cases of acute hemorrhagic nephritis with hypertension, for there is danger of producing a further elevation of blood pressure and precipitating a cardiac catastrophe. Supportive measures for the heart were instituted in addition to the use of magnesium sulfate and the limitation of fluid intake. After administration of a complete digitalizing dose it was usually found unnecessary to continue with a maintenance dose. In cases in which there was cardiac involvement of any degree sedation (morphine) was valuable. The ultimate prognosis as

regards the heart itself is good, as only one of the twelve surviving patients who had cardiac involvement shows residual cardiac damage.

#### Cryptorchidism Treated with Gonadotropic Principle

—From a study of seventy-one boys with ninety-one undescended testicles who were given injections of the gonadotropic principle of the urine of pregnant women and the gonadotropic principle of the anterior lobe of the pituitary gland, Bigler and his co-workers find that these extracts produce changes in the external genitalia of some patients but not in all. The changes when present are manifested by flushing of the genitalia, enlargement of the testicles and penis or descent of the testicles. In the patients treated with the gonadotropic principle of the urine of pregnant women 48 per cent of the undescended testicles completely descended into the scrotum by the end of treatment but only 45 per cent remained descended. If the partially descended testicles are included, 61 per cent can be considered benefited. In the patients treated with the gonadotropic principle of the anterior lobe of the pituitary gland 25 per cent of the testicles completely descended into the scrotum but only 18 per cent remained descended. Including those in whom the testicles partially descended, 35 per cent were benefited. When both gonadotropic extracts were used in treating the patient 40 per cent of the cryptorchid testicles showed complete descent but only 25 per cent of the testicles remained in the scrotum, 55 per cent were benefited. When descent of the testicle occurs, it usually begins to take place before 4,000 rat units of the gonadotropic principle has been administered. Treatment seems to be about equally successful at any age after the first year, but it seems better not to begin treatment until after the seventh year of life. In a control series of fourteen untreated and inadequately treated patients (seventeen undescended testicles) descent of the testicles did not occur. Both extracts often caused enlargement of small testicles but never permanent enlargement of normal testicles. Both extracts produced enlargement of a normal-sized penis in eight boys. Reactions both general and local may occur during treatment. Treatment had no effect on weight or height or on body build, even when hypoplasia of the genitalia was present, with a feminine type of body build. If improvement does not occur by the time about 4,000 rat units of the gonadotropic factor of the urine of pregnant women has been administered, operation may be considered.

#### American Journal of Medical Sciences, Philadelphia

195 141 280 (Feb.) 1938

- Culture of Human Marrow. Improved Apparatus for Large Scale Culture E E Osgood Portland Ore—p 141
- Studies of Gaucher Cells by Supravital Technique L A Erf New York—p 144
- Observations on Seventy Eight Cases of Pernicious Anemia with Especial Reference to Weight Changes E Jones Nashville Tenn—p 150
- Rubber Sheaths as Veneral Disease Prophylactics: Relation of Quality and Technique to Their Effectiveness R Cautley, G W Beebe and R L Dickinson New York—p 155
- Clinical Experience with Sulfanilamide in Treatment of Beta Hemolytic Streptococcus Infections P O Hageman and T G Blake, New Haven Conn—p 163
- Experience with Sulfanilamide in Meningitis Josephine B Neal and E Appelbaum New York—p 175
- \*Histopathologic Study of Tissues of Sixty Five Patients Injected with Thorium Dioxide Sol for Hepatosplenography Follow Up Study of Ten Old Cases W M Yater and E R Whitmore Washington D C—p 198
- \*Evaluation of Congo Red Test for Amyloidosis Correlation of Autopsy Findings and Dye Absorption in 125 Cases S Lipstein Staten Island, N Y—p 205
- Blood Pressure and Pulse Rate as an Index of Emotional Stability II G Armstrong Dayton Ohio—p 211
- Gastric Acidity After Gastroenterostomy C Holman and W R Sandusky New York—p 220
- Effect of Zinc Content on Action of Insulins S S Altschuler and R Lesser Eloise Mich—p 234
- Ocular Cardiovascular Syphilis U J Wile and J S Snow Ann Arbor Mich—p 240
- Cardiovascular Complications of Hyperthyroidism A C Ernestine Cleveland—p 248

#### Tissues After Injection of Colloidal Thorium Dioxide

—Yater and Whitmore performed necropsies on sixty-four patients at intervals of a few days to three years after the injection of an average dose of 75 cc of colloidal thorium dioxide for the purpose of making hepatosplenograms. In no case was there any evidence of injury to the tissues or cellular

reaction that could be ascribed to the presence of the thorium dioxide. A subcutaneous nodule was excised from the arm of a patient four years and five months after the injection of colloidal thorium dioxide accidentally into the subcutaneous tissues. The thorium dioxide was walled off by dense hyaline connective tissue, the nodule resembled the kind of nodule found in the lungs in nodular silicosis. Nowhere was there any evidence of injury to the tissues or cellular reaction other than the primary reaction resulting in the walling off of the thorium dioxide.

**Congo Red Test for Amyloidosis**—In evaluating the congo red test in the diagnosis of amyloidosis, Lipstein made an analysis of 125 necropsies on tuberculous subjects in whom a congo red test had been performed. Amyloidosis was diagnosed in the usual manner, that is, the use of iodine grossly and congo red or methyl violet staining for microscopic sections. In all these cases tuberculosis with its attendant complications was the predominant picture and the patients ranged in age from 2 to 72 years. At necropsy, amyloidosis was present in thirty-four. In twenty-nine of these cases the percentage of absorption was 90 per cent or higher, with complete absorption of the dye in twenty-four. There were five cases recorded in the amyloid group with less than 90 per cent of absorption of the dye. Postmortem examination in four of these cases revealed minimal or moderate amyloid changes and the spleen was the only parenchymatous organ involved grossly. A possible explanation for the low absorption values in these instances is that there were not sufficient amyloid deposits to absorb the dye. In the ninety-one cases in which no amyloidosis was present the percentage of congo red absorption in eighty-seven of the cases varied from 10 to 75. In the remaining four cases there were percentage values of 100, 95, 90 and 80, despite the absence of evidence of amyloid at necropsy. The study confirms the observation that, although amyloid changes are infrequent postmortem observations even in large general hospitals, the incidence rises sharply in tuberculosis institutions. In the present series amyloidosis was present in 27.2 per cent of the cases. In a statistical survey of approximately 1,000 necropsies at the hospital, the incidence was found to be 20 per cent.

### American Journal of Psychiatry, New York

54 759 1012 (Jan.) 1938

- Clinical Studies of Drug Addiction. III. Critical Review of Withdrawal Treatments with Method of Evaluating Abstinence Syndromes. L. Kolb and C. K. Hummelsbach, Lexington, Ky.—p. 759
- Circumscribed Cortical Atrophy in Presenile Psychoses. Pick's Disease. Clinicopathologic Study. C. Davison, New York.—p. 801
- Emotional Factors in Rehabilitation of the Physically Disabled. L. Reznikoff, Secaucus, N. J.—p. 819
- Interpretation of Electrical Activity of the Brain. H. Davis, Boston.—p. 825
- Electrical Signs of Cortical Function in Epilepsy and Allied Disorders. H. H. Jasper and I. C. Nichols, Providence, R. I.—p. 835
- Protracted Hypoglycemia Case. N. L. Easton, New Toronto, Ont.—p. 853
- Mental Disease in Russia. J. Page, Rochester, N. Y.—p. 859
- Hospital Records. W. C. Garvin, Binghamton, N. Y.—p. 867
- Misunderstanding of Pathogenesis of Schizophrenia Arising from the Concept of Splitting. M. Levin, Mayview, Pa.—p. 877
- Vitamin C Studies in Alcoholics. H. Wortis, S. B. Wortis and Frances J. Marsh, New York.—p. 891
- Analysis of Spoken Language of Patients with Affective Disorders. S. Newman and Vera G. Mather, New Haven, Conn.—p. 913
- Review of Work on Extrasensory Perception. D. L. Wolfe, Chicago.—p. 945
- Comments on Dr. Wolfe's Review. J. B. Rhine, Durham, N. C.—p. 957
- Neuroses and Neuropsychoses. Illustrative Case Histories. A. Myerson, Boston.—p. 961

**Vitamin C in Alcoholism**—The Wortises and Marsh determined the reduced ascorbic acid content in the blood and spinal fluid in normal persons and in 103 chronic alcoholic patients. In two patients the five hour urinary excretion test (Wright) was done. The studies indicate that in chronic alcoholism without peripheral neuritis or psychosis there is a tendency for a low normal vitamin C content of the blood and spinal fluid, whereas alcoholic patients with peripheral neuritis or the various forms of alcoholic psychosis tend to have a sub-normal vitamin C content of the blood and spinal fluid. The results seem to emphasize the nutritional factor in the production of nervous and mental changes in chronic alcohol addicts. It is suggested that vitamin C may have a role in the metabolism of the nervous tissue.

### American Journal of Tropical Medicine, Baltimore

18: 1 110 (Jan.) 1938

- Development of International Transportation and Its Effect on Pract. of Tropical Medicine. H. C. Clark, Panama, Republic of Panama.—p. 1
- Importance of Environment in Study of Tropical Diseases. H. A. Sawyer, New York.—p. 9
- History of Leprosy in the United States. G. W. McCoy, Washington, D. C.—p. 19
- Incidence of Poliocidal Serums in Regions Where Poliomyelitis Epidemics Are Infrequent. N. P. Hudson, Columbus, Ohio and E. H. Lennette, Chicago.—p. 35
- Life History of *Dipyllobothrium Mansonoides* Mueller, 1935, and Some Considerations with Regard to Sparganosis in the United States. J. F. Mueller, Syracuse, N. Y.—p. 41
- Present State of Knowledge Concerning Existence of Species of *Nyctitherus* (Chitris) Living in Iran. R. Wichterman, Woods Hole, Mass.—p. 67
- Propagation of Yellow Fever Virus in Mouse Testicle. H. H. Smith, New York.—p. 77
- Comparative Pathology of Infections of *Plasmodium Rouxi* in Canaries with Other Malarial Birds, Monkeys and Man. M. D. Young, Baltimore.—p. 85
- Two Years' Observation of Malaria Therapy in Texas. S. W. Bobb and D. H. Lawrence Austin, Texas.—p. 101

**Incidence of Poliocidal Serums**—Hudson and Lennette present data on the incidence of poliomyelitis in various parts of the world, as determined by the presence in human serum of antibodies capable of neutralizing the specific virus. These studies were originally undertaken in the attempt to find regions in which this disease does not exist and in which possibly this type of antibody was not to be found. Those areas were selected in which epidemics of poliomyelitis occur at least infrequently, tropical to subtemperate zones. Poliomyelitis does not occur frequently in epidemic proportions in the tropics, although instances are on record. The survey increases the conception of the world-wide distribution of this disease, both because of the incidence of neutralizing serum and because of reports of sporadic cases in regions not otherwise heard from. The existence of these sporadic cases emphasizes the infrequency of poliomyelitis epidemics and, since the authors have examined chiefly tropical regions, their data lend support to the idea that the tropical conditions contribute some factor to the host-parasite relationship that allows for a common existence of the virus, generalized immunization, occasional sporadic cases and infrequent epidemics. Most of the tests were done by a qualitative method, the MV strain of virus being mixed with undiluted serum. Under the conditions of experimentation the poliocidal antibodies were apparently the same in the different serums, and the incidence of positive specimens was similar in the areas examined. As the same virus was neutralized by the various serums in the authors' experiments and with the interpretation that the so-called neutralization test is a specific antigen-antibody reaction, the data presented indicate that the virus in the widely scattered regions sampled is antigenically identical. Seven of nine adults of Thursday Island, Australia, and ten of twelve adults of Formosa, Brazil, possessed the neutralizing property. In the former place sporadic cases of poliomyelitis occur, and deaths from the disease have been reported from scattered parts of Brazil.

### American Review of Tuberculosis, New York

37 125 258 (Feb.) 1938

- Present Trend of Case Fatality Rates in Tuberculosis. G. J. Drolet, New York.—p. 125
- Selective Thoracoplasty with Lung Mobilization. Conservative Goal in Permanent Collapse Therapy. R. H. Overholt, Boston.—p. 152
- Röntgenologic Group Examinations for Pulmonary Tuberculosis. R. G. Bloch, B. F. Francis, C. W. Eisele and E. W. Mason, Chicago.—p. 174
- Weltmann Serum Coagulation Reaction. Comparison with Sedimentation Reaction and with Chemical Findings in Pulmonary Tuberculosis. S. A. Levinson and R. I. Klein, Chicago.—p. 200
- Intracutaneous Reactions Against Antiserum in Tuberculosis. H. J. Corper and C. B. Vidal, Denver.—p. 238
- Experimental Oleothorax. D. H. Soley, H. S. Willis and J. C. J. Heston, Northville, Mich.—p. 245

**Thoracoplasty with Lung Mobilization**—Overholt discusses the results of the 763 thoracoplasties performed on 50 patients during the five years that the department of thoracic surgery has been established in the Lahey Clinic. During the first half of this period selective thoracoplasty was used and during the latter half thoracoplasty with lung mobilization



The group represents a consecutive series of patients operated on by the same surgical team. The number of seriously ill patients accepted for thoracoplasty has been increased, yet the risk of operation has steadily declined. Of those in the poor risk group, sixty had bilateral cavitation. Of the 206 patients in the "good chronic" group, 89.5 per cent were definitely benefited by the procedure, 51 per cent are already back at work and 25 per cent are in various sanatoriums with their disease quiescent or arrested. In the poor risk group 24 per cent are working and the condition of 26 per cent is quiescent or arrested. It was found that 69 per cent were benefited by operation. In the entire series 121 patients were completely rehabilitated. The possibilities are good that eventually the condition of 248 (80 per cent) of the 307 patients whose treatment has been completed will be classified as apparently arrested and that they will be able to carry out varying degrees of activity. The results suggest that thoracoplasty is the most valuable of all permanent collapse procedures. Selective yet adequate collapse of the diseased lung and conservation of the uninvolved lung should be the ideal in permanent collapse therapy. The extent of the decostalization can be reduced by mobilization of the upper lobe at the time of the first-stage operation. A delay between stages is an important factor in planning the most conservative operation.

### Annals of Surgery, Philadelphia

107 161 320 (Feb.) 1938

- Acute Intestinal Obstruction. Evaluation of Results in 2 150 Cases with Detailed Studies of Twenty Five Showing Potassium as a Toxic Factor. J. Scudder, R. L. Zwemer and A. O. Whipple. New York.—p. 161.
- \*Short Interval Stage Operations for Severe Hyperthyroidism. A. B. McGraw. Detroit.—p. 198.
- Factors Influencing Prognosis in Carcinoma of the Breast. H. H. Davis, Omaha.—p. 207.
- Intratracheal Suction in Management of Postoperative Pulmonary Complications. C. Haight. Ann Arbor, Mich.—p. 218.
- Spontaneous Cholecholecystostomy and Cholecystogastrostomy. M. Davison and L. J. Aries. Chicago.—p. 229.
- Stones in the Common Bile Duct. F. C. Beall. Fort Worth, Texas.—p. 238.
- Appendicitis in Army Service. Report of 2 100 Cases. R. W. Bliss. El Paso, Texas, and L. D. Heaton. Fort Warren, Wyo.—p. 242.
- Volvulus of Cecum and Ascending Colon. M. Weinstein. Long Island City, N. Y.—p. 248.
- Argentaffine Tumors of the Gastrointestinal Tract. Report of Three Cases. One with Distant Metastases. T. E. Wyatt. Nashville, Tenn.—p. 260.
- Mechanism of Spastic Vascular Disease and Its Treatment. P. Heinbecker and G. H. Bishop. St. Louis.—p. 270.
- Neoplasms of Abdominal Wall with Especial Reference to Malignant Implantation Tumors. J. A. Lazarus. New York.—p. 278.
- \*Blood Loss in Neurosurgical Operations. J. C. White, G. P. Whitelaw, W. H. Sweet and E. S. Hurwitt. Boston.—p. 287.
- Giant Cell Tumor of Cervical Spine. D. P. Willard and J. T. Nicholson, Philadelphia.—p. 298.
- Rationale of Bone Drilling in Delayed and Ununited Fractures. P. V. Prewitt and E. R. Easton. New York.—p. 303.

**Short-Interval Operations for Severe Hyperthyroidism.**—After trial and observation of intervals varying from one day to two weeks, McGraw is convinced that the optimal period for "short-interval" stage thyroidectomies in severely toxic goiter patients is from seven to ten days between operations. A single period of hospitalization of a month or less by shortening the interval between operations to a week or ten days is often necessary in certain goiter patients owing to their financial or educational status. If the patient's condition permits, unilateral lobectomy is the first stage operation of choice. At the first stage the entire isthmus and pyramidal lobe, if present, should also be removed—even at the expense of dealing first with the smaller of two diffusely hyperplastic lobes. At the conclusion of the first stage it is preferable to omit subcutaneous suture of the skin flaps, to use cutaneous clips rather than through and through sutures, and to avoid draining the wound. Before proceeding with the second operation, one should allow the slightest imperfection in wound healing to clear up completely. The wound should be reopened gently and slowly so that as little subcutaneous bleeding as possible will be caused and that any area in the wound suggestive of infection may be detected before the wound is widely opened. At the end of the second operation the wound should again be inclosed without subcutaneous skin sutures and again preferably

with clips. The final scars of these two stage operations have been surprisingly excellent. The matter of drainage after the second operation must be left to the surgeon's judgment in the individual case. No drains should be left in place more than twenty-four hours.

**Blood Loss in Neurosurgical Operations.**—White and his colleagues estimated the volumes of blood lost during operation by three different surgeons and found that in simple craniotomies, when nothing more than an exploration and cerebral biopsy was carried out, the average loss amounted to between 500 and 900 cc. In patients with relatively avascular tumors the loss of blood rose to between 600 and 1,200 cc. In three patients with large meningiomas the hemorrhage exceeded 2,000 cc. In five laminectomies the loss of blood varied from 334 to 1,263 cc. A hemorrhage of more than a liter may seem excessive, but with an epidural abscess or a vascular tumor, or in a hypertensive patient, both the muscles and the bony lamina may bleed profusely. In a patient with a hemangioma and compression of the spinal cord, the attempt to expose the tumor had to be given up after two trials owing to severe hemorrhage. On the other hand, in two patients on whom cervicothoracic ganglionectomy and section of the fifth cranial nerve root were carried out, bleeding amounted to only 107 and 86 cc. Excessive bleeding which occurs in the usual neurosurgical operation is due to certain regional conditions. A wide infiltration of the scalp with a 1 per cent procaine-epinephrine solution diminishes bleeding. The authors' preference is to supplement this with basal tribrom ethanol in amylene hydrate, as this drug produces a moderate fall in blood pressure and thereby diminishes hemorrhage from the cerebral vessels. Basal narcosis contributes to the comfort of the patient and reduces nervousness and restlessness. Administration of the general anesthetics ether and nitrous oxide should be avoided whenever possible because they increase bleeding. Nitrous oxide-oxygen anesthesia also produces increased bleeding because it so frequently causes partial asphyxia. When a general anesthetic must be used, a preliminary infiltration of the scalp with 0.5 per cent procaine-epinephrine solution is of value not only as a hemostatic agent but also because a lighter level of anesthesia can be employed. When it is estimated that a hemorrhage of a liter or more has occurred, a transfusion is given before the patient is sent to the ward. After hemorrhages exceeding 1,200 to 1,500 cc, or whenever the blood pressure remains at a critically low level, multiple transfusions are given. This can be carried out in the ward if the intravenous infusion has been kept running. The total fluid intake on the day of operation should rarely exceed 2,000 cc and should be given slowly over a period of from five to eight hours.

### Archives of Surgery, Chicago

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- Histologic Effects of Various Sclerosing Solutions Used in the Injection Treatment of Hernia. L. Manoil. New York.—p. 171.
- Peritonitis. J. S. Horsley. Richmond, Va.—p. 190.
- \*Comedo Carcinoma of the Breast. D. Lewis and C. F. Geschickter, Baltimore.—p. 225.
- Cerebral Pneumography. Ventriculographic Interpretation of Tumors In and About Third Ventricle. Aqueduct of Sylvius and Fourth Ventricle. O. R. Hyndman. Iowa City.—p. 245.
- \*Etiologic Factors of Mesenteric Lymphadenitis. J. Ireland. Chicago.—p. 292.
- Teratoma of Pineal Body. Classification of Embryonal Tumors of Pineal Body. Report of Case of Teratoma of Pineal Body Presenting Formed Teeth. S. J. Bochner and J. E. Scarff. New York.—p. 303.
- Metastasizing Hemangioma Simulating an Aneurysm. G. E. Ward and A. F. Jonas Jr. Baltimore.—p. 330.
- A Review of Urologic Surgery. A. J. Scholl. Los Angeles. F. Hinman. San Francisco. A. von Lichtenberg. Budapest, Hungary. A. B. Hepler. Seattle. R. Gutierrez. New York. G. J. Thompson. J. T. Priestley. Rochester, Minn. E. Wildbolz. Berne, Switzerland. and V. J. O'Connor. Chicago.—p. 336.

**Comedo Carcinoma of the Breast.**—Lewis and Geschickter state that comedo carcinoma usually presents two rather characteristic pictures: diffuse and localized. Diffuse comedo carcinomas present some of the clinical features peculiar to intracanalicular myxoma. It is a slowly growing tumor which involves the greater part of the affected breast, and an isolated tumor cannot be palpated in the enlargement. Despite the size of the growth there are frequently no palpable lymph nodes. Small elevations in the skin may be found which are caused by

the protrusion of the epithelial plugs within the ducts, and not infrequently a discharge from the nipple is noted. In the localized form the tumor is small, measuring from 1 to 3 cm in diameter. It is usually situated at the margin of the areola just beneath the skin and is freely movable. The axillary nodes, as a rule, are not involved, and not infrequently a yellowish or watery discharge from the nipple is noted. The affected breast is slightly larger than the uninvolved breast. The tumor differs from the intracystic papilloma and the blue dome cyst in that it is relatively harder and more irregular. The age incidence of comedo carcinoma corresponds to the age incidence of other forms of carcinoma of the breast. The location of the comedo carcinoma suggests an origin in the larger ducts. Retraction or fixation of the nipple occurs often, and occasionally the patient complains of burning and itching of the nipple, a symptom more common in Paget's disease. The tumor is usually located near the skin, and atrophy of the overlying fat and dimpling of the skin occur. The tumor remains movable. Even when the growth is larger than a large grapefruit and involves almost the entire breast, there will be no fixation to the wall of the chest. Several tumors may be found in the same breast. Of all the forms of carcinoma of the breast, comedo carcinoma offers the most favorable prognosis. There were 85 per cent of five year cures. The majority of the patients living more than five years after complete operation have remained well for ten years or more.

**Etiology of Mesenteric Lymphadenitis**—Ireland's report is based on a series of twenty-two patients in whom mesenteric lymphadenitis was found at operation. Appendectomy was performed on all but two. Twenty-one of the twenty-two patients recovered, and one died of streptococcal peritonitis due to the rupture of a suppurative gland. Infections and toxins have probably been advocated as etiologic factors more than any other agents. That an actual infection of the glands themselves occurs in some patients is definitely proved. Attempts to find organisms in the glands removed at operation have usually been unsuccessful, indicating that a toxin may possibly be the underlying factor in many cases. However, it has been definitely excluded in some patients in whom organisms have been found. Conceptions of the point of entrance of the causative agent into the glands have differed. The appendices of nineteen of the patients in the present series were examined microscopically, and only eight showed any evidence of pathologic change. The appendix is a part of the large intestine and it is a well known fact that the mesenteric lymph glands are frequently not enlarged in cases of acute or of chronic appendicitis. It may be possible that a kinking, twisting or obliteration of the lumen of the appendix may be a factor in some cases. However, an anatomic condition of this character was found in the appendix in only two cases in the present series and consisted of a kinking of the organ. Of the twenty-two patients in the present series, twenty were traced and reexamined. These final examinations were made from sixty days to four years and 285 days after appendectomy. Sixteen of them had had no kind of abdominal distress simulating another attack of mesenteric lymphadenitis since operation, but four were found to have attacks much like those present before operation. The weight of evidence seems to be against those who believe that an infection from the appendix can be excluded as a causative factor in mesenteric lymphadenitis. The percentage of recoveries after appendectomy seems too high to be a mere coincidence. Brennemann suggested that bacteria may be transmitted from the throat by the blood stream or may be swallowed and produce localized inflammatory lesions in the intestine with secondary involvement of the lymph glands. Of the twenty-two patients, there were fifteen (68 per cent) who presented evidence of infection of the upper respiratory tract at the time of operation or just preceding it. It is reasonable to suppose that a higher percentage would have been found if such evidence had been carefully looked for in every instance. Distention, catarrhal inflammation, trauma, intestinal stasis, incompetence of the ileocecal valve with autoinfection of the ileum, regional ileitis, abrasions of the mucous membrane and lowered resistance of the surface epithelium of the intestine have been thought to be important in the production of mesenteric lymphadenitis. Allergy seemed certainly to be the causative factor in one

patient of the present series who had attacks of abdominal pain after appendectomy similar to those before operation. Epinephrine hydrochloride given hypodermically during the paroxysms of pain gave relief. Eggs, pineapples and blueberries were removed from the diet, and the attacks ceased immediately and had not recurred at the last examination, eleven months after these offending foods were eliminated. Careful studies were made of the two other patients who had attacks after appendectomy, but the cause was not found. Therefore it seems clear that there is no one etiologic factor that is responsible for the condition.

### Arkansas Medical Society Journal, Fort Smith

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Cranio cerebral Injuries Management of Acute Case H Wilkin O' homa City—p 188  
Selecting Case for Cesarean Section F Richardson Fayetteville—p 191  
History Taking in General Practice S W Douglas Eudora—p 197

### California and Western Medicine, San Francisco

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Coccidioides Immitis Intradermal Skin Reaction Preliminary Report 449 Cases S Hurwitz J E Young and Bernice U Eddie San Francisco—p 87  
Phases of Adolescent Development in Girls Helen B Pryor Stanford University and H D Carter Berkeley—p 89  
Roentgen Therapy Some of Its Complications R T Taylor Los Angeles—p 94  
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### Canadian Medical Association Journal, Montreal

38 107 208 (Feb.) 1938

- Carcinoma of Rectum and Rectosigmoid Report of Eighty Nine Cases with Especial Reference to Electrocoagulation in Selected Cases P H T Thorlakson and A W S Hay Winnipeg Manit.—p 107  
\*Sudden Death in Infancy A Goldbloom and F W Wiglesworth Montreal—p 119  
Internal Frontal Hyperostosis Syndrome Report of Two Cases A J Roger Toronto—p 129  
Tertiary Syphilis of the Breast H G Ross Montreal—p 137  
Puerperal Sepsis B P Watson New York—p 135  
Acute Intestinal Obstruction Appendicitis E H Wood Ottawa Ont.—p 142  
Clinical Aspects of Precordial Pain W F Connell Kingston Ont.—p 147  
Gastro Intestinal Hemorrhage H A Cave London Ont.—p 151  
Anesthetic Procedures as Standardized for Certain Types of Operation in the Large General Hospital H J Shields Toronto—p 155  
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Pathologic Study of Carcinoma of Cervix P J Kerrins Montreal—p 163  
Treatment of Pulmonary Tuberculosis After Forty J Prevost Montreal—p 166  
Renal and Ureteral Anomalies W I Ritchie Montreal—p 170  
Staphylococcus Toxoid for Recurrent Styes A E MacDonald Toronto—p 172

**Sudden Death in Infancy**—Nineteen of thirty cases of sudden death in infancy showed definite inflammatory lesion at necropsy, indicating, Goldbloom and Wiglesworth believe a fulminating bacterial infection. Four infants were asphyxiated from a mechanical cause (three from the aspiration of milk and one from a large hemangioma of the trachea). One child in addition to a healing pneumonia, had a most remarkable localized hypertrophy of the islands of Langerhans. Five of the remaining sixteen patients showed indefinite inflammatory lesions but taking into consideration the clinical and pathologic changes which were all similar it is possible that they all died of a fulminating infection. The cases were characterized by a vague preceding history, sudden death and at necropsy by interstitial pneumonia, petechial hemorrhages in the lung, thymus and pericardium and sometimes by a septic type of spleen. The sixth patient probably died of laryngeal spasm associated with tetany. The thymuses with two exceptions were not sufficiently enlarged to be abnormal. One of the children died from the aspiration of milk while the other showed evidence of a generalized infection. The weight of the thymus in the group of patients who died suddenly was the same as in those who died in twenty-four hours from the

of definite clinical signs of infection. None of the classic features of the status lymphaticus syndrome were present. Sudden death has frequently occurred when the thymus was small. It is suggested that many cases of sudden death, although not all, are caused by fulminating infections possibly associated with immature immunity on the part of the infant. Postmortem examinations in cases of sudden death should be thorough before the easy diagnosis of status thymicolymphaticus is yielded to. When no pathologic lesion can be found, the pathologist must look to the biochemist or endocrinologist for help.

## Connecticut State Medical Society Journal, Hartford

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Value of Roentgenologic Study in Diagnosis of Heart Disease G Levene Boston—p 57

Clinical Diagnosis of Early Syphilis J E Moore Baltimore—p 70  
Relation of Nasal Surgery to Allergy J D Kelly New York—p 76

## Endocrinology, Los Angeles

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- \*Study of Mechanism of Edema Associated with Menstruation G W Thorn Katherine R Nelson and Doris W Thorn Baltimore—p 155
- Experimental Development of Mammary Gland of Monkey W U Gardner and G Van Wagenen New Haven Conn—p 164
- Quantitative Cytologic Studies of Anterior Lobe of Hypophysis of Fetuses and Children, Correlated with Sexual and Skeletal Development S R Halpern Denver—p 173
- Comparative Efficacy of Various Androgens as Determined by Rat Assay Method C D Kochakian Rochester N Y—p 181
- Interrelation of Pituitary and Adrenal in Control of Carbohydrate Levels in the Rat L L Bennett Berkeley Calif—p 193
- Male Sex Stimulating and Female Sex Repressing Fraction from Adrenal Gland T M Pottenger Jr and D G Simonsen Monrovia Calif—p 197
- Orally Active Sex Maturation Fraction from Adrenal Gland F M Pottenger Jr and D G Simonsen Monrovia Calif—p 203
- Effect of Cortin on Excretion of Electrolytes F A Hartman Lena A Lewis and C Gwendoline Tohy Columbus Ohio—p 207
- Mineral Metabolism of Adrenalectomized Rats Studied by Appetite Method C P Richter and J F Eckert Baltimore—p 214
- Calcium and Phosphorus Studies. XIV Effect of Repeated Doses of Parathyroid Extract on Chemical Composition of Blood and Urine of Dog Explanation of Cause of Death in Parathyroid Overdosage D H Shelling L Kaydi and Lenore Guth Baltimore—p 225

**Edema of Menstruation**—Thorn and his associates observed the fluctuation in the body weight of fifty normal women over a period of thirty-five days. This period represented one complete menstrual cycle. The ages of the subjects, nurses and dietitians, varied between 19 and 36 years. The subjects were weighed each morning immediately prior to breakfast. No attempt was made to control either the total fluid or food intake. In general, the food provided for all members of the group was similar. The onset and duration of menstruation were noted, as well as the occurrence of any unusual signs and symptoms such as headache, swelling of the abdomen, hands and feet, increased appetite and thirst. During the period of observation, the mean daily atmospheric temperature varied between 76.9 and 56.8 F. The relative humidity, measured at noon, varied between 82 and 19 per cent. Twenty-four of the subjects were observed to gain 1 Kg (2½ pounds) or more during the premenstrual period. In addition nine subjects gained weight during the premenstrual period but a subsequent loss occurred prior to the onset of menstruation. In many of the subjects the onset of menstruation was characterized by a rapid loss of weight. During the intermenstrual period thirty-eight subjects were observed to have a marked fluctuation (temporary gain) in weight (1 Kg or more) at or about the time of ovulation. Since the increase in body weight was noted from eight to fifteen days preceding menstruation, it is probable that ovulation occurred in many during the period of increase in weight. The increase and subsequent loss of weight that occurred during the intermenstrual period were not always followed by an increase in weight during the premenstrual period. Approximately two thirds of the subjects who gained weight during the premenstrual period noted swelling of the abdomen and increased appetite and thirst. The subjects in whom no significant increase in weight occurred also experienced the same signs and symptoms. Headache was frequently observed to occur immediately preceding or during menstruation. The increased intake of food and water as a result of an increased appetite and thirst contributed materially to the total

gain in body weight observed in some subjects during the premenstrual period. Balance studies demonstrated a retention of sodium, chloride and water during the intermenstrual as well as the premenstrual phase of the cycle. The onset of menstruation was associated with an increased renal excretion of sodium, chloride and water. The increase in the secretion of sex hormones and the increase in appetite and thirst appear to be contributing factors in the gain in body weight that occurs during the menstrual cycle.

## Journal of Comparative Neurology, Philadelphia

68 173 296 (Feb.) 1938

- Relative Influence of Locus and Mass of Destruction on Control of Handedness by Cerebral Cortex G M Peterson and L C Fracarol Albuquerque N M—p 173
- Localization in Oculomotor Nuclei of Goldfish Z Hadidian and M S Dunn—p 191
- Development of Cerebrum of Amblystoma During Early Swimming Stages C J Herrick Chicago—p 203
- Spinal Accessory Nerve in Human Embryos A A Pearson Chicago—p 243
- Fiber and Cellular Degeneration Following Temporal Lobectomy in the Monkey R W Rundles and J W Papez Ithaca N Y—p 267

## Journal of Experimental Medicine, New York

67 169 344 (Feb.) 1938

- Anaphylaxis in the Isolated Heart H B Wilcox Jr and E C Andrus Baltimore—p 169
- Quantitative Studies on Antibody Purification. II Dissociation of Antibody from Pneumococcus Specific Precipitates and Specifically Agglutinated Pneumococci M Heidelberger and E A Kabat New York—p 181
- Influence of Host Factors on Neuroinvasiveness of Vesicular Stomatitis Virus. III Effect of Age and Pathway of Infection on Character and Localization of Lesions in Central Nervous System A B Savin and P K Olitsky New York—p 201
- Id. IV Variations in Neuroinvasiveness in Different Species A B Savin and P K Olitsky New York—p 229
- Serum Sodium Potassium and Chloride After Suprarenalectomy in Cats with Diabetes Insipidus C A Winter E G Gross and W R Ingram Iowa City—p 251
- \*Iron Metabolism in Experimental Anemia. Availability of Iron P F Hahn and G H Whipple Rochester N Y—p 259
- Hemolytic Effect of Indol in Dogs Fed Normal Diets C P Rhoads and W H Barker New York—p 267
- Induced Susceptibility of Blood to Indol C P Rhoads and D K Miller New York—p 273
- Increased Susceptibility to Hemolysis by Indol in Dogs Fed Deficient Diets C P Rhoads W H Barker and D K Miller New York—p 299
- Results of Intratracheal Injection of Bordet Gengou Bacillus in Monkey and Rabbit D H Sprunt D S Martin and Sara McDearman Durham N C—p 309
- Canine Distemper in Rhesus Monkey (Macaca Mulatta) G Dalldorf Margaret Douglass and H E Robinson Valhalla N Y—p 323
- Sparing Effect of Canine Distemper on Poliomyelitis in Macaca Mulatta G Dalldorf Margaret Douglass and H E Robinson Valhalla N Y—p 333

**Iron Metabolism in Experimental Anemia**—Elvehjem and Hart and their associates claim that the dipyriddy reagent reacts only with the iron which is not bound in complex form (nonhematin iron) and that, since hematin iron is not available for hemoglobin production, the amount of iron in the food which can be utilized by the body is measured by this method. Hahn and Whipple offer evidence that such a premise is untenable. In experimental anemia in dogs due to blood loss the term "available iron" as determined by the dipyriddy test has no physiologic significance. Iron salts (100 per cent available by dipyriddy) given in optimal dose (560 mg in two weeks) will cause a net production of from 50 to 55 Gm of hemoglobin above the control base line in anemic dogs. This means that an iron salt which is rated as 100 per cent available by the dipyriddy test is only 35 per cent physiologically available. The term "available iron (dipyriddy)" sums down to iron not in the form of hematin compounds. The absorption of this "available iron" is conditioned by a great variety of factors, many unknown at this time. Liver contains "available iron (dipyriddy)" but also organic factors influencing hemoglobin regeneration in anemia as liver ash contains only about 50 per cent the potency of the whole liver. Fractions of heart, liver, spleen and kidney may contain but little iron yet cause much regeneration of hemoglobin in anemic dogs.

**Journal Industrial Hygiene & Toxicology, Baltimore**

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- Emphysema as Factor in Dyspnea of Pneumoconiotic Coal Miners S L Cummins, Cardiff Wales—p 1
- Further Studies on Relation of Pneumoconiosis to Respiratory Diseases in the Pittsburgh District Lucy Schnurer Pittsburgh—p 14
- Investigation of Characteristics of Bausch & Lomb Dust Counter S W Gurney, C R Williams and R R Meigs Boston—p 24
- Hazards in Radium and Mesothorium Refining Plant at the University of Missouri J P Morris Columbia Mo—p 36
- \*Experimental Production of Bladder Tumors in Dogs by Administration of Beta Naphthylamine W C Hueper F H Wiley and H D Wolfe, with assistance of K E Ranta M F Leming and F R Blood Wilmington Del—p 46
- Experimental Investigation on Etiology of Aniline Tumors W C Hueper F A Briggs and H D Wolfe, Wilmington Del—p 85
- Effect of Beta Naphthylamine on Tissue Respiration F H Wiley, Wilmington, Del—p 92

**Bladder Tumors from Beta-Naphthylamine**—Hueper and his associates cite investigations that were undertaken in order to provide (through the experimental production of "aniline tumors" in animals) a sound foundation for the study of the various aspects of occupational neoplasms and to obtain information on any possible systemic effect of prolonged exposure to one of the suspected carcinogenic aromatic amines (beta-naphthylamine). Preneoplastic and neoplastic formations (papillomas, carcinomas) were obtained in thirteen of sixteen female dogs treated for a period of from twenty to twenty-six months with subcutaneous injections and oral feeding of commercial beta-naphthylamine. Periodic cystoscopic examinations combined with biopsies indicated that the pretumorous changes of the mucosa of the bladder are represented by blanched or red-brown elevated areas and small polypous, edematous protrusions. The neoplasms observed were pedunculated and sessile, benign and malignant papillomatous new growths and nodular, infiltrative carcinomas. Tumor multiplicity reaching, in several instances, the stage of generalized papillomatosis was a frequent phenomenon. The predominant localization of the tumors in the dependent parts of the bladder and the microscopic observations support strongly the urogenous origin of "aniline" tumors. Prolonged administration of relatively large doses of beta-naphthylamine produces blood destruction, degenerative changes in the tubular epithelium of the kidneys and in the parenchyma of the liver, which also contains adenomatoid, ill defined foci of regenerated liver cells. No detectable change was observed during the investigations in the  $pH$  of the blood or in its content of glutathione, dextrose, calcium, cholesterol and phospholipid phosphorus.

**Journal-Lancet, Minneapolis**

58 43 112 (Feb) 1938

- Coronary Disease Simulating Insulin Reactions Report of Case J L Calene Aberdeen S D—p 44
- Retroperitoneal Syndrome Report of Case D L Kegaries Rapid City S D—p 46
- Bright's Disease C F Morsman Hot Springs, S D—p 49
- Treatment of Pernicious Anemia L H Fredricks Bismarck N D—p 54
- Malaria Developing in North Dakota Case R B Radl Bismarck N D—p 59
- Bronchial Asthma A R Foss Missoula Mont—p 60
- The Management of Pernicious Anemia in Private Practice F R Schemm, Great Falls Mont—p 63
- Side Lights on Early Montana Medical History H W Gregg Butte Mont—p 69
- \*Bone Marrow Studies E L Tuohy Duluth Minn—p 74
- Some Diseases of Peripheral Arteries E V Allen Rochester Minn—p 80
- Gastroscopy in Diagnosis of Gastric Disease H J Moersch Rochester Minn—p 87
- Infectious Mononucleosis C E Lyght Northfield Minn—p 91
- The Scope of Student Health Practice R W Bradshaw Oberlin Ohio—p 96
- Research as an Essential Function of Student Health Service E L Shrader, St Louis—p 98

**Bone Marrow Studies**—The study of the bone marrow is recommended by Tuohy not as a routine but as an adjunct method especially in acute hematologic perversions. The statement often made that for the premortem diagnosis of "aleukemic leukemia" bone marrow smears are necessary must be reserved for those instances in which the circulating blood smear fails at any time to show qualitative leukocytic reversion. So far the author has not found such a case. The interpretation of the

leukopenias calls for the closest differential studies. Without expecting the direct study of the bone marrow to be entirely determinative, he regards its future as promising.

**Journal of Nervous and Mental Disease, New York**

87 133 264 (Feb) 1938

- Significance of Convulsive Reaction During Insulin and Cardiazol Therapy of Schizophrenia L von Meduna Budapest Hungary—p 131
- Significance of Epileptic Convulsion as Therapeutic Factor in Pharmacologic Shock Therapy of Schizophrenia M Sakel, Vienna, Austria—p 140
- Incidence of Pilonidal Sinuses in Mental Defectives W J Johnson and Anne G Livingston Wrentham Mass—p 156
- Psychoanalytic Remarks on Alice in Wonderland and Lewis Carroll P Schilder, New York—p 159
- Mnemonic Biology and Psychology E Bleuler, Zurich Switzerland—p 169
- Relationship of Segmental Nuclei of Brain Stem W F Allen Portland, Oregon—p 202

**Journal of Pharmacology & Exper Therap, Baltimore**

62 1 126 (Jan) 1938

- Effect of Digitalis on Anesthetized Dog I Action on Splanchnic Bed L N Katz S Rodbard, M Friend and W Rotterman, Chicago—p 1
- Some Undescribed Pharmacologic Properties of Bulbo-capnine H Mohr Rahway N J—p 16
- Influence of Theophylline on Absorption of Mercupurin and Salysyn from Site of Intramuscular Injection A C DeGraff R C Batterman and R A Lehman New York—p 26
- Arterenal as Possible Sympathetic Hormone Z M Bacq, Liege, Belgium—p 37
- Fate of Drugs Used in Spinal Anesthesia K Bullock and A D MacDonald Manchester England—p 39
- Gastro-Intestinal Administration of Solisminol Absorption Distribution and Excretion of Bismuth P J Hanzlik, A J Lehman A P Richardson and W Van Winkle Jr San Francisco—p 54
- \*Local Anesthetic Actions of Two Esters of Mono Alkylated Amine Alcohols D I Ahramson and S D Goldberg Brooklyn—p 69
- Studies on Mechanism of Morphine Hyperglycemia Role of Sympathetic Nervous System with Especial Reference to Sympathetic Supply to Liver R C Bodo F W Co-Tur and A E Benaglia New York—p 88
- Studies of Chronic Morphine Poisoning in Dogs VII Effect of Thyroid Feeding on Excretion of Morphine in Tolerant and Nontolerant Dogs O H Plant and D Slaughter Iowa City—p 106
- Effect of Benzadrine Sulfate on Emptying Time of Human Stomach E J Van Liere and C K Sleeth Morgantown W Va—p 111
- Influence of Digitalis Glucosides on Force of Contraction of Mammalian Cardiac Muscle M Cattell and H Gold, New York—p 116

**Anesthetic Actions of Esters of Mono Alkylated Amino Alcohols**—Abramson and Goldberg determined the toxicity and anesthetic efficiency of monacaine and amylcaine on a number of different test animals. Monacaine was an effective compound in producing infiltration and conduction anesthesia. Although it was about one and one-half times as toxic as procaine, its anesthetic efficiency was many times greater. It produced block of the sciatic nerve in a nonanesthetized guinea pig in concentrations as low as 0.00016 per cent [ $\frac{1}{625}$  per cent]. Amylcaine, although also capable of producing nerve block in low concentrations, appeared to be more efficient in effecting anesthesia when applied topically, as to the cornea of the rabbit's eye. The presence of erosions following the administration of this compound was less frequent than in the case of the other anesthetics.

**Kentucky Medical Journal, Bowling Green**

36 39 84 (Feb) 1938

- Management of Eye Injuries M C Baker, Louisville—p 43
- Laryngeal Diphtheria and Its Management D L Salmon Madisonville—p 48
- Local and General Considerations of Some Common Eye Diseases F W Pirkey Louisville—p 53
- Care of the Sick Child L H Winans Lexington—p 56
- Diphtheria in a Five Months Old Child C B Gettelfinger Louisville—p 59
- Osteomyelitis of Jaw and Septicemia in a Four Year Old Child R Buskirk Louisville—p 60
- Amebic Dysentery in a Child Six Years Old K C Reising Louisville—p 61
- Treatment of the Commoner Fractures of Early Childhood H G Berg Louisville—p 63
- Further Observations on Silicosis O O Miller Louisville—p 65
- Consideration of Breast Tumors I Abell Jr Louisville—p 70
- Treatment of Recent Wounds R A Griswold Louisville—p 72
- Recent Developments in Prostatic Surgery J M Townsend and O Grant, Louisville—p 76

## Maine Medical Journal, Portland

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- Osteomyelitis of the Skull F T Hill Waterville—p 23  
Pneumology (Anesthesia Resuscitation Oxygen Therapy) P J Flagg New York—p 28  
Chest Conditions Secondary to Empyema of Posterior Paranasal Sinuses H Butler Bangor—p 30

## Michigan State Medical Society Journal, Lansing

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- An Outline of Liver Functions and Jaundice A C Ivy Chicago—p 121  
Bronchitis F Smith Grand Rapids—p 130  
\*Yeast Dermatoses Contact Dermatitis O S Ormsby Chicago—p 135  
Treatment of Fibroid Tumors and Bleeding of Menopause J T Murphy Toledo Ohio—p 140  
Cerebral Injury in the Newborn Due to Anoxia at Birth F Schreiber and N Gates Detroit—p 145  
Problems of the Newer Obstetrics G Kamperman Detroit—p 151  
Legal Aspects of Psychiatry L A Schwartz Detroit—p 157  
Animal Experimentation W T Dempster Ann Arbor—p 161

**Yeast Dermatoses and Contact Dermatitis**—Ormsby states that a number of cutaneous and mucous membrane disorders formerly described as entities have been found to be due to yeast or yeastlike micro-organisms. Among the cutaneous disorders are erosio interdigitalis, perleche, waterbed dermatitis, paronychia, onychia and possibly seborrheic dermatitis. A mycotic dermatitis frequently occurs beneath the breasts in fleshy women, in the axillary spaces and in the anogenital region, and occasionally the process becomes generalized. Two or more or all of these disorders may coexist in a given patient. Oral thrush in infants responds well to swabbing with a 1 per cent solution of gentian violet, together with mild alkaline mouth washes. For superficial lesions of the mucous membranes of the mouth and vagina a 3 per cent solution of gentian violet is efficient, applied by swab twice daily. Alkaline mouth washes for the oral cavity and a douche containing a 1:2,000 solution of potassium permanganate for the vagina facilitate recovery. For the deeper lesions on the oral mucosa, surgical excision, x-rays and the internal use of potassium iodide may be necessary. Paronychia responds readily to the local application of a 5 per cent suspension of chrysarobin in chloroform. In the waterbed type, suspension of wet dressings together with the application of a soothing lotion, such as the lime water and zinc oxide lotion, together with a 10 per cent naftalan or 2 per cent ichthammol ointment, soon relieves the condition. In the intertriginous type occurring especially beneath the breasts and in the crotch, painting with a 3 per cent solution of gentian violet is efficient. When much inflammatory reaction is present, a preliminary treatment for several days may consist in soaking the parts twice daily with a hot solution of potassium permanganate in the strength of 1:2,000, dressing the parts in the interim with an ointment containing 10 per cent naftalan. In perleche, Finnerud found the local application of an 8 per cent solution of silver nitrate efficient. This application may be repeated at intervals of three or four days. Contact dermatitis, presumably produced by external irritants, is among the commonest of cutaneous disorders for which patients seek relief. These cases cover a broad field, beginning with the simple dermatitis venenata group and ending in that large group of cases which may be termed trade or professional dermatitis or eczema. The symptoms in all these cases are sufficiently similar to be classed together. It is important, however, to be able to distinguish between them for the reason that dermatitis venenata is a comparatively simple malady, running its course in a short time and not recurring unless contact with the same irritant is repeated, whereas the other type may continue indefinitely through the development of new sensitizations. The number of substances capable of producing dermatitis by contact is endless. Contact dermatitis furnishes a large number of cases eligible for compensation under the industrial compensation act. The most important task in its treatment is discovery of the irritant and its removal. The treatment of the immediate attack consists of both local and internal applications and agents. An efficient method is the employment in the early stages of a lime water lotion several times during the day, alternated with the application of an oily cream. After two or three days when the eruption is less acute the same preparations may be

used during the day with an ointment containing naftalan or ichthammol over night. In some instances in which pyogenic infection has developed, a solution of aluminum subacetate or potassium permanganate may be necessary. Immunizing injections are of value in some cases and may be employed both for immunizing and for curative purposes. A method of treatment of all types of contact dermatitis which has been of great value is the use of sodium thiosulfate. This is given by intravenous injections, 0.5 Gm the first day and 1 Gm the second, third, fifth and seventh days. This drug has the ability of overcoming hypersensitiveness to a high degree. Cases that formerly extended over a period of several weeks commonly clear up in a week or ten days under its administration.

## Minnesota Medicine, St Paul

21 79 150 (Feb.) 1938

- Radiation Therapy of Tumors with Consideration of Possible Advantages of Supravoltage X Rays R S Stone San Francisco—p 79  
Energy Metabolism of the Heart in Failure M B Visscher Minneapolis—p 85  
Conservative Renal Surgery R G Scherer Bozeman Mont—p 91  
\*Radium Treatment of Rare Forms of Leukemia R E Fricke and C H Watkins Rochester—p 96  
\*Tuberculous Infection and Morbidity Among Medical Students and Physicians F L Jennings Oak Terrace—p 102  
Clinical Notes on Results of Fever Therapy Report of the First International Conference on Fever Therapy New York City, March 29 31 1937 F H Krusen Rochester—p 105  
Trends in Modern Pediatrics F C Rodda Minneapolis—p 110  
Sinusitis K R Fawcett Duluth—p 112  
Convalescent Serum Treatment in Preparalytic Stage of Poliomyelitis B Rosenholtz St Paul—p 115

**Radium Treatment of Leukemia**—During 1935 and 1936 Fricke and Watkins treated, with radium, sixteen patients with atypical leukemias. Eight patients were diagnosed as having aleukemic phases of chronic myelogenous or lymphatic leukemia. One patient had a monocytic leukemia of the Naegeli type, and seven had types of reticulo endotheliosis. Once the diagnosis is established in these obscure cases with low leukocyte counts, radium is the treatment of choice in order to obtain satisfactory palliation. Roentgen therapy covers a larger portal and the effect of treatment is usually too sudden and drastic. The authors' best results have been obtained by the very cautious and well controlled use of radium. At a distance of 1 inch (2.5 cm) from the skin, 50 mg of radium sulfate (element), filtered through 2 mm of lead, was applied for a period of eight to twelve hours, depending on the leukocyte count, the size of the spleen and the general condition of the patient. Treatments varied from one to nine areas over the spleen in one treatment series and from eight to twelve hours of treatment per area, all carefully controlled by blood counts. Fifteen of the sixteen patients showed improvement in the condition of their blood and amelioration in their symptoms. The one exception was a man, aged 39, who suffered from an acute reticulo-endotheliosis following a severe attack of acute tonsillitis four weeks previously. Radium treatment was begun but was abandoned after twelve hours, as the patient was failing rapidly. He died two days later. Too little treatment was applied to have affected the disease one way or another.

**Tuberculosis Among Medical Students and Physicians**—Jennings points out that fourth year medical students have each spent two weeks as clinical clerks in Glen Lake Sanatorium since 1925. In 1929 they were first questioned with regard to tuberculin tests given them before they entered the sanatorium. Of the first eighty-seven students questioned 65 per cent had reacted positively when tested at the students' health service at the university to 1:1,000 dilution of old tuberculin. Beginning in the middle of November 1930 the next 184 students were tested on the day of entrance and 66.3 per cent were found to be positive to the intradermal test. The range of positive reactors to tuberculin varies for the years 1930 to 1936 inclusive from 52.5 to 67.8 per cent. The average of 62.04 per cent among the 851 fourth year medical students is less than that reported among fourth year medical students in the eastern part of the country. The number of positive reactors among the medical students of eastern schools increased in each year of the course until in their fourth year 98 per cent of them reacted positively. This steady increase is not necessarily confined to medical schools but is probably true of any



school at which the students' opportunities for infection must increase with continued residence among a large group of people. It is probable that the lower incidence among the University of Minnesota students as compared with that of the eastern schools lies in the fact that Minnesota's students, for the most part, come from communities less densely settled than do the students attending eastern schools. The possibility of tuberculous disease was taken into consideration from the first, and roentgenograms were made of the students' chests the day they started work at the sanatorium. The period here covered extends from 1920 to Sept. 15, 1930. To the 670 in this group who had been here for training at some time during the ten years, questionnaires were sent early in 1932 in an attempt to ascertain the state of their health during the interval between receipt of this questionnaire and their sanatorium residence. Replies were received from 526. The replies disclosed that 267 of the normal group of 473 had considered themselves in good condition and had not troubled to have subsequent roentgenograms of their chests. Of the 206 who had had subsequent roentgenograms, 168 still had normal readings. Thirty others reported evidence of acute or chronic nontuberculous conditions variously diagnosed as bronchitis, bronchiectasis, emphysema and the like, but no evidence of adult tuberculosis. Ten per cent (fifty-three) of the students who came to the sanatorium showed deviations from the normal that might constitute possible evidence of tuberculosis when their chests were first examined. The answers to the questionnaire that was sent to these students from one to ten years after their period of instruction at the sanatorium showed that thirty-nine had had subsequent x-ray examinations. Twenty reported that their lesions had shown no change from the examinations made at the sanatorium. Four have since shown extension of their lesions and two of them have spent some time in a sanatorium as patients. Forty-seven of the fifty-three students in this group had shown no evidence of clinical tuberculosis subsequent to their graduation. There had been no deaths from tuberculosis among the 526 who trained at the sanatorium. Tuberculosis has never caused a proportionately large number of deaths among physicians. Physicians have always been more or less exposed to tuberculosis, but statistics do not show a high death rate among them, which seems to support the assumption that there is a relatively low morbidity rate.

### New Jersey Medical Society Journal, Trenton

35 67 128 (Feb.) 1938

- Eight Year Roentgen Survey of Colon Pathology J. N. Furst and L. J. Gelber Newark—p. 75  
Cerebral Palsy and Poliomyelitis as They Concern the Family Doctor the Orthopedist and the Neurologist W. M. Phelps Baltimore—p. 78  
The Pathology of Intestinal Amebiasis T. T. Mackie New York—p. 86  
Puerperal Infection Its Prevention and Treatment Maternal Welfare Article Number Twenty Three J. F. Norton Jersey City—p. 90

### New York State Journal of Medicine, New York

38 161 244 (Feb. 1) 1938

- Surgical Disease of the Colon C. G. Heyd New York—p. 161  
Roentgen Findings of Renal Tuberculosis H. K. Taylor and L. P. Wershub New York—p. 166  
\*Mediastinal Hodgkin's Disease H. H. Fasabach and K. R. McAlpin, New York—p. 171  
Electrophoretic Therapy Problems and Value K. Harpuder, Bronx—p. 176  
Treatment of Arthritis in Health Resorts R. Muller New York—p. 181  
Ocular or Pseudotortricollis M. T. Horwitz Philadelphia—p. 184  
Blood Dyscrasias Caused by Occupation with Specific Reference to Effect of X-Ray Radium Lead and Benzol I. W. Held and A. Lieberman New York—p. 186  
Schminke Tumors M. Berger New York—p. 193  
Intra Abdominal Conditions Due to Trauma W. T. Doran and W. T. Doran Jr. New York—p. 196  
Arthritis Treatment by Physical Therapy J. Echtman New York—p. 201

**Mediastinal Hodgkin's Disease**—Kasabach and McAlpin point out that 251 patients were admitted to the Presbyterian Hospital and Vanderbilt Clinic between 1918 and 1935 with the diagnosis of Hodgkin's disease. Seventy-seven had mediastinal involvement. The cases in which the mediastinum was involved were analyzed in order to determine what relation there might be between treatment and the length of survival. In nineteen of the seventy-seven cases the presenting manifesta-

tion of Hodgkin's disease was found in the mediastinum, as shown on roentgenograms, without associated lymphadenopathy elsewhere. In these cases enlargement of peripheral lymph nodes became apparent on an average of eighteen months after the x-ray diagnosis of mediastinal adenopathy. In the remaining fifty-eight patients with mediastinal involvement, Hodgkin's disease was present in various parts of the body at the time of the first examination. Of the seventy-seven patients, twelve have been lost to follow up and fifty-seven have died. The remaining eight are living and two are at present in the terminal stage of the disease. The average survival period of the group receiving adequate irradiation is five years and four months. Twenty patients had what was considered inadequate treatment. Their average survival period was approximately three years and three months. The remaining seven patients had no treatment. The average survival period in this group was approximately three years and one month. The more generalized the disease, the shorter is the period of survival. Osseous invasive pulmonary and pleural complications, and enlargement of the liver are associated with shorter period of survival. The maintenance of the patient's weight and general well being is stressed as an important factor in the prolongation of life.

### Northwest Medicine, Seattle

37 33 60 (Feb.) 1938

- Lipocae New Pancreas Hormone L. R. Dragstedt Chicago—p. 41  
Response of Insulin Sensitive and Insulin Tolerant Patients to Protamine Insulin B. Holcomb and R. Holcomb Portland Ore—p. 36  
Sulfanilamide A. E. Lewis, Seattle—p. 40  
Aplastic Anemia Due to Sensitivity to Benzol Derivatives V. W. Miller Salem Ore—p. 43  
Alleviation of Pain in Labor W. P. Sadler Minneapolis—p. 45  
Renal Tuberculosis Diagnosis and Management A. H. Peacock Seattle—p. 47  
Vincent's Angina and Tartar Emetic T. W. Ross Portland, Ore—p. 49

### Ohio State Medical Journal, Columbus

34 129 248 (Feb.) 1938

- Dependence of Internal Medicine on Neuropsychiatric Ideology E. C. Fischbein Dayton—p. 145  
Modern Problem of Nephritis Clinical Resume P. T. Knies Columbus—p. 150  
Molds as Cause of Allergy L. H. Harris Elyria—p. 158  
Alexander Goldspohn Operation and Its Modification for Retrodisplacement of Uterus H. M. Wiley Cincinnati—p. 161  
\*Treatment of Congenital Syphilis with Acetarsone Preliminary Report E. E. Smith R. I. Fried Cleveland and M. W. Everhart Columbus—p. 165  
Eczematoid Lesions Following Occupational Dermatitis Venenata I. L. Schonberg and A. Marcus Cleveland—p. 169  
Intravenous Use of Morphine Sulfate M. Salzer, Cincinnati—p. 170  
Improved Health Standards for Athletes and Physical Education J. W. Wilce Columbus—p. 173  
Gangrenous Diverticulum Associated with Suppurative Appendicitis S. W. Obenour Zanesville—p. 175  
Gonorrheal Conjunctivitis Treatment with Sulfanilamide and Ferric Therapy C. S. Perry Columbus—p. 176  
Treatment of Pneumonia G. S. Shibley Cleveland—p. 177

**Treatment of Congenital Syphilis with Acetarsone**—During the last two years Smith and his co-workers have used acetarsone in the treatment of thirty-three cases of congenital syphilis. There have been few toxic reactions. Whenever a reaction has occurred a rest of one week has been instituted and treatment resumed with a lower dosage. The method of administration has been a modification of the Bratusch-Marrain scale 5, 10 and 15 mg daily per kilogram of weight, each for a period of two weeks, then 20 mg for twelve weeks. Each prescription is made up in 56 cc of water so that 1 drachm (4 cc) a day gives the dosage and allows for fourteen doses. At the end of each course a Wassermann test is made and the patient is given a rest period of one month, during which time mercury with chalk is taken. This is given according to the method outlined by Jeans. If the Wassermann reaction is negative, another course is given and the Wassermann test is repeated. If this too is negative a final course is given and then the parent is requested to return with the child every six months for a checkup for the next two years. Of ten patients who began their treatment after they had passed their first birthday, five became serologically negative and five remained positive. However, every child showed clinical improvement. Of the twenty-three children less than 1 year of age nine

became serologically negative and four remained positive after one or more courses. Of these four, one died of pneumonia during the second course, one had only one course of therapy, and the remaining two were irregular in attendance at the clinic. Of those who became negative, eight required more than one course before there was a reversal of the Wassermann reaction. There is not a single child in either group that did not improve under treatment.

### Oklahoma State Medical Assn Journal, McAlester

31 33 66 (Feb.) 1938

- Treatment of Urethral Fistula B A Hayes Oklahoma City—p 33  
Low Back Pain in Relation to Urology S I Wildman Oklahoma City—p 35  
Cancer of the Stomach D D Paulus and J H Robinson Oklahoma City—p 39  
Diagnosis and Treatment of Maxillary Sinusitis W L Alspach Tulsa—p 43  
Shall We Destroy Medical Protection for Selfish Gain? L H Ritzhaupt Guthrie—p 46

### Pennsylvania Medical Journal, Harrisburg

41 345 454 (Feb.) 1938

- Further Experiences with New Principle in Renal Surgery O S Lowisley New York—p 345  
Office Procedure for Treatment of Primary Dysmenorrhea Clinical Observations on Instigating Cause of Pain W J Larkin Scranton—p 348  
Use of Fever Therapy with Children M B Ferderher Pittsburgh—p 354  
Analysis of 2 500 Hospital Deaths H H Donaldson Pittsburgh—p 357  
Gonadotropic Hormone Therapy in Cryptorchidism and Disturbances of Spermatogenesis J F McCahey Philadelphia—p 359  
Egocentric Emotionally Unstable Type of Psychopathic Child Some Remarks on Etiology J Chornyak Pittsburgh—p 364  
Hyperthyroidism L G Cole Blossburg—p 366  
Arsenical Herpes Zoster F C Knowles and W W Bolton Philadelphia—p 370  
The Deaf Individual and Hearing Aids A Problem for Otologists or Laymen? M S Ersner Philadelphia—p 373  
Significance of Abdominal Pain and Tenderness J P Griffith Pittsburgh—p 376  
Nephrolithiasis and the General Practitioner C A W Uhle Philadelphia—p 382  
\*Sulfanilamide Rash F S Mainzer Huntingdon—p 386  
Diagnosis and Treatment of Cancer of Body of Uterus B M Anspach and J B Montgomery Philadelphia—p 387

**Sulfanilamide Rash**—A toxic effect, consisting of nausea, fever, dizziness, itching of the skin, cyanosis and cutaneous eruption, produced by the administration of sulfanilamide, is reported as occurring in three cases treated by Mainzer. The reaction appeared in two patients between the seventh and ninth day, but in one the first symptoms came on the second day. The symptoms began with fever and itching of the skin, followed by nausea, cyanosis and a cutaneous eruption. The temperature ranged from 101.4 to 104.3 F reaching its normal peak on the third day. Cyanosis of the lips was observed, which is attributed by various writers to the presence of methemoglobinemia or sulfhemoglobinemia. The rash was most prominent on the chest, abdomen face and extremities. The eruption was of the maculopapular type slightly raised from the unaffected skin and red or brownish. The lesions ran a rapid course fading out almost completely within nine days of onset. The evidence that the eruption was produced by sulfanilamide is strong, owing to the fact that when the drug was discontinued the symptoms faded out.

### Public Health Reports, Washington, D C

53 113 160 (Jan 28) 1938

- Pathologic Histology in Mice Produced by Intravenous Inoculation with Toxin of *Clostridium Sordelli* (Bifermentans) R D Lillie—p 113  
Pollution Problem in the Ohio River Drainage Basin H R Crohurst—p 121

53 217 246 (Feb 11) 1938

- Harmful Industrial Dusts R R Sayers—p 217  
Production of Tumors in Mice of Strains C<sub>5</sub>H and 1 by Dibenzanthracene and Methylcholanthrene H B Andervont—p 229  
Pulmonary Tumors in Mice V Further Studies on Influence of Heredity on Spontaneous and Induced Lung Tumors H B Andervont—p 232

53 247 280 (Feb 18) 1938

- Role of Airplane Dusting in Control of Anopheles Breeding Associated with Impounded Waters R B Watson C C Kiker and H A Johnson—p 251  
Reliability of Medical Judgments on Malnutrition M Derryberry—p 263

### Southern Medical Journal, Birmingham, Ala

31 127 232 (Feb.) 1938

- Angioid Streaks of Choroid and Pseudoxanthoma Elasticum G E Clay and J M Baird Atlanta Ga—p 127  
\*Diethylene Glycol Poisoning in the Human K M Lynch Charleston S C—p 134  
A Generalized Case of Morphea Guttata H Hailey and H Hailey Atlanta Ga—p 138  
Inquiry into Nature of So-Called Syncytoma Reconsideration of Choriocarcinoma R B Greenblatt and E R Pund Augusta Ga—p 140  
Roentgen Diagnosis and Treatment of Benign Giant Cell Tumor of Bone J A Meadows and K F Kesmodel Birmingham Ala—p 148  
Regional Ileitis Clinical Report of Two Cases E B Frazer and W R Meeker Mobile Ala—p 153  
Combined Active Immunization for Diphtheria and Tetanus Plea for Its Routine Use J V Cooke St Louis—p 158  
Epidemiologic Study of Approximately 400 Cases of Cerebrospinal Meningitis in Kentucky with Observations on Comparative Value of Meningococcus Antitoxin and Anthacterial Serum P E Blackerby and F W Caudill, Louisville Ky—p 161  
Evaluation of Skin Tests for Pregnancy P Graffagnino and E von Haam New Orleans—p 169  
Brecht Presentation Review of 133 Consecutive Cases from Touro Infirmary H Meyer New Orleans—p 173  
Some Practical Considerations Relative to Complications of Mastoiditis J H Moore Huntington W Va—p 175  
Hypoglycemic Therapy in Psychoses of Long Standing Studies of Blood Sugar and Blood Cholesterol with Case Report H D Allen Jr Mill edgeville Ga—p 179  
\*Symptomatic Treatment of Parkinsonian Syndrome with Cobra Venom R F Gayle Jr and J N Williams Richmond Va—p 188  
Herpes Zoster and Chickenpox C C Barrett Lexington Ky—p 192  
Some Evidence of Tissue Interdependence During Development F H Swett Durham N C—p 196  
The Present Status of Gastroscopy E H Gaither Baltimore—p 203  
Food Allergy as Cause of Vasomotor Rhinitis C H Eyermann St Louis—p 210  
Fibrinous Pericarditis Following Thyroidectomy P W Spear Baltimore—p 215  
Teaching of Syphilis to Undergraduates and Postgraduates R H Kampmeier Nashville Tenn—p 218  
Modern Medical Education as it Applies to Urology H W McKay Charlotte N C—p 224

**Diethylene Glycol Poisoning**—Lynch describes four cases resulting in death from the ingestion of the new "elvan" preparation of sulfanilamide in diethylene glycol solvent. It appears that the lethal constituent was diethylene glycol, apparently used by the manufacturer simply as a solvent. Study of the necropsy material from these cases reveals an interesting and somewhat unique picture, similar to that produced by certain other poisons and yet apparently distinct. They may be summed up as showing in common a characteristic acute necrosis of the secretory tubules of the kidney and an equally characteristic central lobular necrosis of the liver, both conditions apparently based on direct epithelial damage. Two cases showed infarction of the renal cortex, in one complete in both organs, like embolic infarction and apparently resulting from vascular closure in the areas affected. In at least one case there was an acute gastritis in which the glandular epithelium of the stomach was damaged just like that of the kidney and liver. All the patients had an early acute lobular pneumonia by the time of death.

**Treatment of Parkinsonism with Cobra Venom**—It is generally accepted that cobra venom is a neurotoxin which strikes the higher nerve centers of the brain. The use of cobra venom solution in the treatment of the parkinsonian syndrome suggested itself to Gayle and Williams because it has been proved that intramuscular injections may relieve chronic pain, and in view of the fact that certain patients having paralysis agitans suffer from pain, it was decided to use this product in the hope of relieving parkinsonism. It was found in certain cases of the parkinsonian syndrome that not only was the pain relieved but certain other symptoms, such as increased spasticity and tremor were benefited. Cobra venom was used for eighteen patients with well developed signs and symptoms of the parkinsonian syndrome. They exhibited the typical signs of muscular rigidity nonintention tremors, masked facies, pains and altered gait. The ages of the patients varied from 21 to 69 years. The method of treatment followed in each case was to give the patient 0.5 cc of cobra venom intramuscularly the first day and then 1 cc every other day for ten doses. If no subjective improvement was effected by this number of doses, the treatment was discontinued. In all who showed improvement, the interval between doses was lengthened with no increase

in symptoms. The most striking effect of the cobra venom was the relief of pain. Usually the pains were relieved after about the fourth or fifth injection, and this has lasted until the present time. In 67 per cent of the cases there was marked subjective improvement, but little objective change was noted. These patients stated that there seemed to be less muscular rigidity and that they were able to perform tasks which were impossible before treatment. An improvement was noted in their attitudes, in that they were encouraged, more cheerful and decidedly less nervous. Thirty-three per cent of the patients who showed no improvement were older than the average and the duration of the disease was much longer. Cobra venom solution is a valuable aid in the symptomatic treatment of the parkinsonian syndrome, it has a cumulative effect when given in small doses intramuscularly and it can be partially substituted for drug therapy in certain cases of the disease.

### Western J Surg, Obst & Gynecology, Portland, Ore

46 61 126 (Feb) 1938

- The Cancer Problem F W Lynch San Francisco—p 61  
Cerebral Hemorrhage in the New Born H F Dietrich Beverly Hills Calif—p 69  
Complete Rectal Prolapse Fascial Repair C W Mayo Rochester Minn—p 75  
Endometriosis Simulating Tumors of the Bowel Collective Review Elisabeth A Murphy, San Francisco—p 78  
Ileus in Pregnancy J M Simmons and N H Williams Los Angeles—p 84  
San Francisco's First Successful Cesarean Section Performed by Elias Samuel Cooper Founder of California's First Medical School Division I Presidential Address L A Emge San Francisco—p 101

### West Virginia Medical Journal, Charleston

34 49 96 (Feb) 1938

- Modern Anesthesia B F Brown Huntington—p 49  
\*Ulcers Due to Varicose Veins and Lymphatic Blockage H H Trout Roanoke—p 54  
Benign Choriomeningitis (Aseptic Meningitis) Report of Seventeen Cases D C Ashton Beckley—p 61  
Diagnosis and Treatment of Uterine Bleeding J E Andes Morgan town—p 65  
Value and Limitations of Radiation Therapy H W Jacox Pittsburgh—p 73  
Relative Frequency of Idiopathic and Toxic Fatal Hepatitis in the United States D A Bryce Plainfield, N J—p 76  
A Method for Closure of Triable or Frail Peritoneum H C Myers Philippi—p 79

**Ulcers from Varicose Veins and Lymphatic Blockage**—Trout believes that for the successful treatment of intractable ulcer due to varicose veins and lymphatic blockage the removal of the diseased tissue, in addition to the removal of the fascial barrier and the regeneration of the lymphatics, is essential. In addition to the work of Kondoleon there has been much experimental work to show conclusively that lymphatics do regenerate. The beneficial results following the removal of the fascia might be due to having the superficial tissues drained by the deep lymphatics. It is the author's belief that the edema and the like are due not only to the blockage of the venous system but also to the obstruction of the return of lymph. The obstruction of the lymph is due to the blockage of the lymph channels and nodes by the fibrous tissue which follows the infection. In such cases both the width and the length of the fascial strip removed should be greater than the amount of superficial fat removed, when the lymphatic block is confined to the superficial lymphatics. To establish a free path for the unhampered regeneration of the lymphatics, it is necessary to remove the strip of fascia higher than the edema and particularly is this true when the swelling is the result of involvement in the deep vessels and lymphatics. Of course, in these cases the strip of fascia is removed from both the inner and outer sides. Since 1917 the author has treated forty-one cases of intractable ulcers with success. By "success" he does not mean to imply that the leg has become normal or that it is as good as the opposite and unaffected leg. However, these patients have been relieved from pain, the ulcers have completely healed, the swelling of the leg has been greatly reduced and they have returned to their various occupations without any marked degree of physical discomfort or the necessity of wearing an elastic stocking or applying Unna's paste legging.

### FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Journal of Anaesthesia, Manchester

15 41 84 (Jan) 1938

- Anesthetic Twitches F Cartwright—p 43  
Toxic Jaundice Following Administration of Pentothal J M Vary—p 55  
Some Observations on Pentothal Sodium C P Dixon—p 60  
Evipan Sodium in Dental Surgery J Bunyan—p 62  
\*Chin Retraction New Sign in Anesthesia J U Human—p 66

**Chin Retraction**—Human observed the occurrence of chin retraction about eighteen months ago in more than 50 per cent of the 600 patients he has anesthetized to the third stage of anesthesia. The sign consists of a downward movement of the larynx and chin with each inspiration. In cases in which the chin does not actually move, the tightening of the chin depressor muscles can always be either seen or felt just below the chin with the fingers. Usually the chin moves visibly. When eyeball activity ceases, the corneal reflex disappears and the pupil begins to dilate, chin retraction begins and, as the anesthetist always holds the mask with one or two fingers under the chin, he can feel the rhythmic tightening of the muscles under his fingers without looking at the patient and thus determine the degree of anesthesia. This sign remains active and obvious throughout the further deepening of anesthesia, and in ascending anesthesia it stops abruptly at the upper level of the second plane. The most reasonable explanation of chin retraction would be that the muscles, which by their tone hold the larynx in position, relax at the bottom of the first plane so that with each downward movement of the diaphragm the lungs are drawn downward bodily for about 1 cm carrying the trachea and larynx with their attachments downward with them. It occurs whether ether, chloroform or nitrous oxide is being given. Chin retraction is always more marked when a closed system of anesthesia with rebreathing is employed.

### British Journal of Tuberculosis, London

32 1 60 (Jan) 1938

- Subacute Miliary Tuberculosis Case L S T Burrell—p 3  
Tuberculosis in New Zealand I C Macintyre—p 5  
The Tuberculosis Problem in India C Fridmott Moller—p 11  
Ancillary Method in Treatment of Pulmonary Tuberculosis W D W Brooks—p 14  
\*Trauma as Factor in Pulmonary Tuberculosis M H Skolnick—p 19  
Swallowing the Sputum C G Learoyd—p 24

**Trauma in Pulmonary Tuberculosis**—Skolnick cites the case of a fireman who seemed to be in perfect health previous to an injury (exposure to adverse conditions of physical fatigue, exhaustion and water drenching) as evidenced by his personal history, family history and occupational records. While he was working under extreme conditions of exposure there was a progression of his pulmonary tuberculosis. Although the symptoms were apparently present earlier the condition was not diagnosed as tuberculosis until approximately eight months following the injury. Medical authorities substantiate the opinion that external factors frequently bear an important causal relationship in the activation of dormant tubercle bacilli into the disease of tuberculosis.

### British Medical Journal, London

1 157 214 (Jan 22) 1938

- Diet in General Practice with Especial Reference to Amount of Food Given L Cole—p 157  
Coal Tar Naphtha for Destruction of Bedbugs Application in Dwelling Houses and Tenements S A Ashmore and A W M Hughes—p 160  
Recovery Period in Anterior Poliomyelitis N M Harry—p 164  
\*Treatment of Acute Poliomyelitis Analysis of Sister Kenny's Method I H Mills—p 168  
Posttraumatic Parkinsonism and Effect of Aropine T F Mair—p 170  
Retention of Urine Following Excision of Rectum H T Simmons—p 171

**Treatment of Acute Poliomyelitis**—The new system of treatment in acute poliomyelitis that Mills describes has produced results over a period of twenty years so promising that it appears that one's views as to the degree of recovery for

sible will have to change. In opposition to the accepted theory the view is taken that the pain in the extremities is almost completely vascular in origin. The muscular pain results from venous engorgement and consequent anoxia of the paralyzed muscles. The venous return from the extremities is influenced mainly by tone and activity of the muscles. In poliomyelitis the interference with this venous return is often of extreme degree. At first there is venous stasis, and later on capillary stasis and capillary paralysis. As a result mild trophic changes develop in the skin, bones, joints, fasciae and especially the muscles. Immobilization of paralyzed limbs, with consequent vascular catastrophe, leads to contraction of the muscle sheath and anemia of muscle fibers, with subsequent mild fibrosis. The ischemic pseudoparalysis is accentuated by stretching and relaxation of muscles, tending to cause a permanent shortening of the length of the fibers and often resulting in slight deformities. The irritation stage is an artificial stage, which may invariably be overcome in two or three days by a well regulated system of frequent passive movement, fomentation and hydrotherapy. In no case does pain persist more than three days, although it will usually recur in the early mornings after the limb has been rested during the night. Cutaneous hyperesthesia also disappears under the treatment. As soon as the temperature drops, the active phase of reeducation is started, that is, reeducation is begun within one week of the onset of paralysis. The restoration of circulation is accomplished by hydrotherapy which makes use of the rapid alternation of hot and cold sprays in the bath. The limbs become suffused with pink within ten minutes, the areas last to lose their cyanotic appearance being those which overlie the paralyzed muscle groups. By this simple measure applied daily trophic changes are avoided and the later application of such operative procedures as sympathetic ramisection are rendered unnecessary. Briefly, instead of being dealt with by rest and immobilization in the acute stage, the affected limbs must be treated energetically, by fomentations, by hydrotherapy and by movement through every range of each joint every two hours, and a finely graded system of reeducation must be started as soon as possible, usually within the first week of paralytic manifestations. Under such a regimen wasting of paralyzed muscles occurs only to a small degree. It is not claimed that this treatment will cure all cases at all stages of the disease. So far only thirty-five cases have been treated in the early stages, but in view of the degree of improvement in these and in 1,400 chronic cases, it is claimed that Sister Kenny's methods will give the maximal recovery possible in every case treated within the first two months of the disease.

### Journal of Laryngology and Otology, London

53 97 172 (Feb.) 1938

\*Aural Vertigo. Clinical Study. A. J. Wright—p. 97.  
Osteomyelitis of Petrous Pyramid. G. Kelemen—p. 113.

**Aural Vertigo**—Wright discusses seventy-three cases of vertigo from suppurative of the middle ear. The disease does not result from a lesion in the middle ear but is primarily in the labyrinth. It is marked by an increased irritability of the labyrinth, as shown in the cochlea by hyperacusis and in the vestibule by an abnormal reaction to normal stimuli, such as movements of the head, or to minimal abnormal stimuli, such as some alteration of tension in the middle ear. Focal infection is invariably present, and frequently other lesions exist, especially chronic iritis. All patients with aural vertigo treated by eradication of a septic focus or foci are now completely free from vertigo. The author believes that cases of labyrinthine vertigo, which have been regarded as of unknown or doubtful etiology, can be grouped together as belonging to a single disease which he calls "focal labyrinthitis." This disease is an inflammation of the labyrinth. He bases this view on the occurrence of nerve irritation, both auditory and vestibular, signs of tension and progressive loss of function, and on the analogy with a known inflammatory lesion, chronic iritis. It is not, in his opinion, the result of disease in the middle ear. That it is secondary to a focus of infection is shown by the invariable presence of such a focus and to a greater degree, by the arrest or even cure of the disease when such a focus

is eradicated. This he believes is the only hypothesis that explains the many isolated observations in the literature which do not fit into the present somewhat indefinite ideas of its pathology.

### J Royal Inst Public Health and Hygiene, London

1 185 248 (Jan.) 1938

Evolution of Chronic Rheumatism with Corresponding Treatment. R. F. Fox—p. 199.  
Knowledge Is the Key to Health. J. Fenton—p. 221.  
Clinical Basis for Administration of Tuberculosis. C. H. C. Toussaint—p. 228.  
Radiology and Rheumatic Backache. S. G. Scott—p. 236.

### Lancet, London

1 181 238 (Jan. 22) 1938

Role of Active or Passive Immunization in Control of Enteric Infection. W. W. C. Topley—p. 181.  
Normal Ventriculograms in Tumors of Cerebral Hemispheres. J. Pennybacker and S. P. Meadows—p. 186.  
Indications for Collapse Therapy in Pulmonary Tuberculosis. W. Behrens—p. 190.  
Serum Reactions After Injection of Concentrated Therapeutic Serum. Hilda M. Davis—p. 193.  
Preparation 2020. New Blood Pressure Raising Drug. F. A. Jones with observations on its use in asthma by C. Wilson—p. 195.  
\*Nature of Subcutaneous Spherules in Some Cases of Ehlers-Danlos Syndrome. F. P. Weber and Janet K. Aitken—p. 198.  
Fatal Infections by Hemolytic Streptococcus Group B. R. M. Fry—p. 199.  
\*Incidence of Weil's Disease Among Coal Miners in Northumberland and Durham. W. G. A. Swan and J. A. McKeon—p. 201.

**Subcutaneous Spherules in Ehlers-Danlos Syndrome**—Weber and Aitken believe that the presence of numerous freely movable subcutaneous spherules, especially where the skin is loose, may be included as a fifth main sign of the Ehlers-Danlos syndrome, though it has not been recorded in most cases. These nodules or "spherules" are usually the size of a pea or smaller and slip about under the skin, apparently in the superficial portion of the subcutaneous fat. By light pressure with the finger they can easily be moved an inch or considerably more without any pain or tenderness being complained of. Owing to their hardness one would not expect them to be lipomas, but by microscopic examination they have been found to consist of fat. The authors think that they are sprouting (budlike) lobules of subcutaneous fat, which by gradual thinning and atrophy of their pedicles become more or less free bodies in the loose subcutaneous tissue. Their presence in considerable number constituted the most remarkable feature of the case that they report. There were only a few of the "atrophic" scars which usually constitute the most important character of the Ehlers-Danlos syndrome. The Ehlers-Danlos syndrome is probably not so rare as is supposed. Since December 1936 cases from three families have been demonstrated before the dermatologic section of the Royal Society of Medicine in London, and other cases have been heard of from other parts of England.

**Weil's Disease Among Coal Miners in Northumberland**—In an effort to estimate the incidence of subclinical infection with *Leptospira icterohaemorrhagiae* among coal miners in the northeast of England, Swan and McKeon visited two collieries in the autumn of 1936. In one of these, six cases of Weil's disease occurred between February 1935 and December 1936. In the other colliery three cases had occurred in May and June 1936. In all the diagnosis had been confirmed by serologic agglutination. Among the miners at these collieries 101 volunteered to give blood for serologic examination. All gave negative agglutination results except two from the first colliery. These two men gave histories of a serious illness with jaundice eighteen months previously which seemed to be clinically identical with Weil's disease. Both their serums agglutinated to a titer of 1:300. The remaining ninety-nine men for the most part gave no history of any previous illness and none gave a history of anything in the least resembling Weil's disease. All their serums showed a negative agglutination at a titer of 1:30. These results are at variance with those previously published relating to sewer and fish workers. There seems to be no adequate explanation for this and the conclusion is that the incidence of subclinical Weil's disease among coal miners in the northeast of England is less than might have been anticipated.

## Medical Journal of Australia, Sydney

1 91 138 (Jan 15) 1938

- Some Modern Phases of Laboratory Diagnosis H A Woodruff—p 95  
 Insulin Treatment of Schizophrenia C Farran Ridge and P G Reynolds—p 100  
 Distribution of *Cysticercus Bovis* in Sites of Election in the Ox W J Penfold, H B Penfold and Mary Phillips—p 107  
 Magnesium and Carbohydrate Metabolism A B Corkill and A H Ennor—p 113

## Practitioner, London

140 1 112 (Jan) 1938

- Use of Thyroid Preparations G R Murray—p 1  
 Use of Parathyroid Preparations and Calcium Salts D Hunter—p 11  
 Use of Adrenal Gland Hormones in Treatment S L Simpson—p 28  
 Use of Pituitary Preparations P M F Bishop—p 38  
 Use of Female Sex Hormones in Treatment D MacLeod—p 45  
 Use of Male Sex Hormones E W Riches—p 60  
 Diet in Health and Disease VII Diet in Endocrine Disorders and Obesity D M Lyon—p 68  
 Clinical Picture of Acute Appendicitis H Dodd—p 77  
 Injection Treatment of Hernia M Lee—p 93

## Quarterly Journal of Medicine, Oxford

7 1 170 (Jan) 1938

- \*Type of Gonococcal Bacteremia with Characteristic Hemorrhagic Vesicular pustular and Bullous Skin Lesions H Keil—p 1  
 Insulin Resistance in Diabetes Mellitus and Effect of Dietary Carbohydrate O L V de Wesselow and W J Griffiths—p 17  
 Overstimulation of Vagus Nerve in Rheumatic Fever J D Keith—p 29  
 Some Rare Types of Microcytic Anemia L S P Davidson and H W Fullerton—p 43  
 Radiology of Pulmonary Infarction K S Smith—p 85  
 \*Marchiafava Michel Syndrome of Nocturnal Hemoglobinuria with Hemolytic Anemia R B Scott A H T Robb Smith and E F Scowen—p 95  
 Hyperinsulinism Due to Pancreatic Islet Adenoma R Fraser, W S MacLay and S A Mann—p 115  
 Hemolytic (Spherocytic) Jaundice in Adult M C C Israels and J F Wilkinson—p 137  
 Anterior Pituitary Lobe in Graves Disease and in Myxedema C I Cope—p 151

**Gonococcal Bacteremia and Cutaneous Lesions**—Keil discusses a form of gonococcal bacteremia in which the patients often appear to be profoundly ill and in which the initial clinical impression seems consistent with a poor or guarded prognosis. This belief is strengthened when there are cardiac murmurs and the blood cultures are positive. Despite this, recovery is the rule. The course of these cases is often explained on the basis of healed gonococcal endocarditis accompanied by hemorrhagic cutaneous lesions, but the author's observations are at variance with this hypothesis. Although the literature contains isolated reports of this dermatosis, its diagnostic value has not been sufficiently recognized and in many instances the cutaneous lesions have been regarded as either a simple pyoderma, a drug eruption, a variant of multiform erythema or a nonspecific toxic manifestation. The cultivation of the gonococcus from the blood stream, joints, skin and other structures and its isolation after death from vegetations in the heart constitute evidence that this organism invades the circulation. An intermittent bacteremia is inadequate evidence that the heart valves are unaffected. It is probable that gonococci gain access to the general circulation through the superficial or deeper venous channels. The evidence for gonococcal bacteremia appeared to be unequivocal in four of the five cases cited, the organism having been isolated from the blood, articulations or cutaneous lesions. In the remaining instance the clinical course and the features of the eruption pointed to a systemic gonococcal infection. In general the syndrome is characterized by the occurrence of fever, joint manifestations and a special type of dermatosis. The condition has a duration of from several days to a few months, in some instances a protracted course is attributable to a residual, slowly healing deforming arthritis rather than to continuation of the bacteremia. The local focus from which dissemination takes place may be active and acute in other instances the primary process is clinically inactive and has apparently been healed for weeks, months or even years. There are no remarkable fluctuations of temperature such as are seen in the average case of gonococcal endocarditis. In many instances there is continued fever owing to the presence of an

arthritic process rather than to a persistent bacteremia. Articular disease is a fairly constant feature, with but few exceptions. The type of joint manifestation cannot be differentiated from that observed in ordinary uncomplicated gonococcal arthritis. The morphologic attributes of the dermatosis, considered in relation to the clinical picture, provide features that often lead the observer to diagnose correctly an illness otherwise obscure. The eruption is typically composed of a scanty number of lesions, varying from one or two to six or eight in all, in occasional instances they may be distributed over the entire body. As a rule the lesions are discrete, rarely does coalescence occur as an incidental event in the course of a profuse eruption. In typical cases the extremities are affected, with particular favor for their distal parts. Less commonly, isolated lesions are encountered on the trunk, face, scalp and oral mucous membranes, where they appear to be less easily recognized. The tendency to occur in crops is a striking phenomenon. In the majority of cases there were, on the average, two additional outbreaks of lesions. Generally the eruption arises during the febrile period, but rarely further development of lesions may be observed during intervals of apyrexia. The primary element is an erythematous macule that speedily acquires a central vesicle or pustule. In typical examples hemorrhage occurs in the center of the lesion, and in many cases the evaduation of fluid and cells causes bullous formation. The classic lesion in full development is a hemorrhagic purulent vesicle or bulla, surrounded by a more or less broad erythematous areola. Occasionally an intermediary zone of relative pallor is noted. Evaduation may at times be so pronounced that rupture occurs. A smear of the contents of a lesion reveals numerous pus cells in various stages of disintegration. Bacterial stains on cutaneous sections have their greatest field of diagnostic usefulness in cases in which the organism is difficult to isolate, but it will be generally necessary to study fresh or young efflorescences.

**Nocturnal Hemoglobinuria with Hemolytic Anemia**—Scott and his colleagues record two cases of the Marchiafava Michel syndrome of nocturnal hemoglobinuria with hemolytic anemia which were carefully studied during life and in which complete postmortem examinations were made. The clinical picture is clear cut and the main features are moderate hepatomegaly, anemia, hemoglobinemia, paroxysmal nocturnal hemoglobinuria, persistent hemosiderinuria and a liability to venous thromboses. The condition runs a protracted course and terminates in death. Splenectomy is without avail. The chief morbid anatomic changes are thromboses of the central veins of the liver with zonal hepatic necroses, marked siderosis of the renal tubules and erythroblastic hyperplasia of the bone marrow. It is suggested that these pathologic changes are the result of prolonged intravascular hemolysis. The possibility that some obscure chrome acquired hemolytic anemias may be larval forms of the Marchiafava-Michel syndrome is suggested.

## Japanese Journal of Gastroenterology, Kyoto

9 263 372 (Dec) 1937

- Studies on Metabolism of Acetone Bodies in the Kidneys T Terashima—p 263  
 Nutritional Significance of Intestinal Administration of Polysaccharides T Terashima—p 273  
 Clinical Consideration on Change in Amount of Glucose Contained in the Blood in the Loading Test with Galactose S Yasaki and T Terashima—p 286  
 Influence of Blood Components During Renal Disturbance on Amount of Glutathione Contained in Various Organs W Nishihiro—p 294  
 Influence of Blood Component During Renal Disturbance on Oxidoreductive Ability of Various Organs W Nishihiro—p 304  
 Behavior of Liver in Metabolism of Amino Acids Reports II and III I Kitamura—p 312

## Japanese Journal of Obstetrics &amp; Gynecology, Kyoto

20 559 658 (Nov) 1937

- Short Wave Treatment of Endocrine System the Diencephalon and Mesencephalon J Samuels—p 560  
 Method for the Diagnosis of Pregnancy and Ovulation J Samuels—p 579  
 Malignant Tumor and Tuberculosis Part V Tuberculosis and Patients with Carcinoma Uteri from Point of View of Surface Temperature Serum S Imamura—p 596  
 Some Influences on Physiologic Duration of Pregnancy H Shinoda—p 600  
 O Ohta—p 600  
 Experimental Study on Effect of Functions of Ovary and Anterior Pituitary Lobe on Narcosis Parts I to VI S Sakaki—p 613



**Presse Medicale, Paris**

46 225 248 (Feb 12) 1938

- \*Certain Anomalies of Tuberculin Reactions O Paiseau J Valtis and E Kayem—p 225  
Nephrotyphoid and Nephritis of Typhoid Fever J Olmer and A Jouve—p 226  
Endocrine Disorders of the Skeleton G Coryn—p 228

**Anomalies of Tuberculin Reactions**—Paiseau and his associates point out that some investigators have called attention to the existence of negative cutaneous reactions in children or adults who have been in close and prolonged contact with carriers of tubercle bacilli. The authors themselves observed children living in prolonged contact with tuberculous parents who reacted negatively to tuberculin tests, not only to cutaneous reactions but also to intradermal tests with 0.1 cc of a 1:100 solution of tuberculin. In the course of the last three years the authors have collected seventeen cases of this type. The object of their report is not to expose the shortcomings of the tuberculin test but rather to call attention to certain anomalies: (1) long persistence of the dissociation between a negative cutaneous reaction to tuberculin and the positive intradermo-reaction to this substance, and (2) change of positive to negative cutaneous reactions. They discuss these anomalies and cite case histories in which they observed them. They reach the conclusion that it is indisputable that an organism which is free from tuberculosis never reacts to a cutaneous tuberculin test, but it cannot always be deduced from this that a negative cutaneous reaction is proof of the nonexistence of tuberculosis. Aside from that, there is a conclusion which has long been arrived at from the fact that a considerable proportion of subjects present a positive intradermal tuberculin reaction without a cutaneous reaction. What should be emphasized is that it is necessary to consider the change from a negative cutaneous reaction as evidence of a primary tuberculous infection.

**Revue de la Tuberculose, Paris**

3 1121 1264 (Dec) 1938

- Extrapleural Pneumothorax M Schmidt—p 1122  
Extrapleural Pneumothorax Remarks on Report by Schmidt A Maurer—p 1137  
Extrascapular Apicolysis M Iselin—p 1139  
Pleural Depressions in Course of Artificial Pneumothorax and Their Variations with the Changes in Position of the Subject C Spezza fumo—p 1152  
\*Blood Transfusions in Chronic Tuberculosis of the Lungs Lymph Nodes and Serous Membranes J O Krizevski—p 1162

**Blood Transfusion in Tuberculosis**—Krizevski points out that as late as 1934 E Hesse of the institute for blood transfusion shared the opinion of Bürkle de la Camp and Schliff about the contraindication to transfusion as a variety of protein therapy in patients with tuberculosis. It was the author's object to determine to what extent blood transfusion can be employed in the treatment of tuberculosis. Moreover, it seemed desirable to know whether tuberculosis represents a contraindication to blood transfusion in patients in whom other conditions such as traumas make transfusions necessary. Before resorting to transfusions in the clinic, the author made experimental studies on the action exerted by blood transfusions on the evolution and propagation of tuberculous processes. He made these experiments on rabbits which had been inoculated with cultures of bovine and human tubercle bacilli. The observations on the rabbits convinced him that blood transfusion exerts no special action on the propagation and evolution of the tuberculous process. Nevertheless, the question of the possibility of an unfavorable action of blood transfusion in tuberculous patients had not been solved as yet. The great diversity of the forms of the tuberculous process, the various localizations and the forms of development raise the question as to the choice of patients and of the propitious moment for the transfusion. The author made his observations on seventy-nine patients. Transfusion can be resorted to in tuberculous patients when a concomitant disease or a traumatism indicates it. In such cases blood transfusion is contraindicated only in progressing chronic extensive cavernous tuberculosis. As a therapeutic procedure transfusion is indicated in the following cases: in serous disorders such as pleurisy with effusion peritonitis and polyserositis, in voluminous adenopathies and in focal pulmonary

tuberculosis with perifocal and pneumonic phenomena. Blood transfusion, however, is contraindicated in all forms of fibrous tuberculosis and in sclerosis of the lung. The most favorable time for the transfusion is that period of the disease when the resources of biologic immunity in the patient are in the ascending state. The blood transfusion should be repeated in cases in which the effect of the first transfusion is not sufficient. The author observed no parallelism between the effect of the transfusion and nonspecific protein reactions.

**Schweizerische medizinische Wochenschrift, Basel**

68 169 188 (Feb 19) 1938

- Diagnostic and Therapeutic Problems of Focal Infection A Grumbach—p 169  
New Aspects of Problem of Scorbatic Dystrophy P Rohmer—p 173  
\*Relations Between Acetonuria and Menstruation H Iselin—p 175  
New Aspects of Brucella Abortus Infection K F Meyer—p 176  
Therapy of Neurosympathetic Disturbances H Bauer—p 178  
Bee Venom in Iontophoresis P Descocudres and T Wacker—p 179

**Acetonuria and Menstruation**—Iselin says that in 1930 he first directed attention to a possible relationship between acetonuria and menstruation. He had observed that acetonuria occurs chiefly in little girls and that, moreover, its appearance is cyclic. He had also found that acetone was present in the breath of many women before and at the beginning of the menstrual period. His attention was again drawn to this problem by a case he observed recently. A girl, aged 15 years, had been subject to periodic vomiting since the age of 3 years. With the onset of the menstruation, the attacks ceased. The author considers the periodic acetonuria in girls before and after onset of the menstrual flow not so much a pathologic process as the sign of a physiologic-chemical process, of a menstrual acetonemia. This acetonemia might be elicited by a function of the incompletely developed ovary or, even more likely, by the hypophysis. At any rate, the author thinks that the periodic acetonuria is in some way connected with menstruation. This symptom, he says, is accompanied by a hypersensitivity to substances that impair the liver, such as chloroform anesthesia, and he advises that such substances should not be administered when acetone has been demonstrated in the urine of menstruating women.

**Archivio Italiano di Chirurgia, Bologna**

47 481 600 (Dec) 1937

- Pathogenesis of Juvenile Spontaneous Gangrene Behavior of Blood Vessels in Experimental Hyperadrenism Castration and Implantation of Ovaries N Maggi and L Parodi—p 481  
Lesions to Body by Electric Current L Ghetti—p 505  
\*Behavior of Dextrose and Chlorides in Cerebrospinal Fluid in Postoperative Period G Canger and G Radici—p 550  
Surgical Treatment of Painful Syndromes from Hemisacralization of Fifth Lumbar Vertebra S Mondolfo—p 561  
\*Power of Absorption of Ureter Experiments F Grieco—p 581

**Dextrose and Chlorides in Cerebrospinal Fluid**—From their observations on eighteen patients, Canger and Radici found that the amount of dextrose and chlorides in the cerebrospinal fluid is increased during the postoperative period. The variations are not related to the type of anesthesia used and do not parallel those in the blood. Dextrose increases more in the cerebrospinal fluid than in the blood. It increases also if glycemia decreases. However, it never reaches pathologic proportions. The ratio of dextrose in the blood and the cerebrospinal fluid is diminished. The chlorides in the cerebrospinal fluid increase, whereas those in the blood plasma decrease. The ratio is diminished. The authors point out that the variations are due to dysfunction of the blood-central nervous system barrier which is concerned in the regulation of the passage of plasmatic substances to the fluid. The functions of the barrier are controlled by the stimulation of the chemical substances in the blood which depends on the more or less intense concentration of the substance, especially proteins in the blood plasma. The humoral variations induced by any surgical intervention, especially the proteins in the blood, are the cause of dysfunction of the blood-central nervous system barrier with consequent changes of the fluid. The authors believe that the modifications of the cerebrospinal fluid during the postoperative period are not related to the nervous disturbances which may appear in the course of the period.

**Power of Absorption of Ureter**—Grice experimented on rabbits to determine the power of absorption of the ureter, whether normal between two ligations or mechanically dilated without ligations. He concludes that the normal ureter constantly and rapidly absorbs solutions of India ink, bacterial emulsions and solutions of strychnine nitrate. The rapidity of absorption, in order of frequency, is strychnine solution, bacterial emulsion and India ink. The absorption of toxic doses of strychnine nitrate is more rapid when the poison is injected into the ureter than when it is injected subcutaneously. Absorption by dilated ureters takes place slowly. Solutions of strychnine injected into dilated ureters did not poison the animals, probably because of the slow absorption of the poison by the body and parallel rapid elimination of the poison. According to the author, the properties of absorption of the ureter play a part in the pathogenesis of infections of the urinary tract.

### Rivista di Patologia e Clin. d. Tuberculosis, Bologna

12 172 (Jan 31) 1938

Researches on Morphology of Bone Marrow Taken by Puncture of Sternum in Tuberculosis. G. Lanza—p. 1

Tuberculosis of Hilus of Lung and Exudative Pleurisy. M. Accoromboni—p. 23

Microscopic and Bacteriologic Study of Early Reactions of Spleen in Course of Experimental Tuberculous Meningitis. E. Zamboni—p. 31

Unilateral Predisposition to Visceral Diseases and Thoracic and Abdominal Pathologic Correspondences and Alternations. A. Campani—p. 38

\*Elimination of Vitamin C in Tuberculosis. A. Nicita—p. 41

Therapeutic Action of Sodium Benzozate by Intravenous Route in Pulmonary Tuberculosis. S. Bertaccini—p. 50

**Elimination of Vitamin C in Tuberculosis**—Nicita found that the elimination of vitamin C through the urine is diminished in patients who are suffering from pulmonary tuberculosis. The diminution is proportional to the seriousness of the general and pulmonary conditions of the patients. The consumption of vitamin C by the body is increased, owing to the presence of chronic tuberculous toxemia. The author points out the advisability of administering liberal amounts of vitamin C to patients who are suffering from pulmonary tuberculosis.

### Archivos Arg. de Enf. del Ap. Digest. Buenos Aires

13 145 241 (Dec Jan) 1937 1938

Causes of Noncancerous Mechanical Jaundice. Importance of Operative Cholangiography. P. L. Mirizzi—p. 145

Localization of Paracoccidial Granuloma in Stomach, Intestine and Pancreas. J. W. Tobias and F. L. Niffo—p. 163

Perforated Cholecystitis. Anatomoclinic Varieties. J. A. Caero—p. 176

\*Relations Between Coagulation of Blood and Jaundice. F. M. Bustos—p. 187

Juxtapyloric Ulcer. Pylorotomy. Painful Complications for Eighteen Years. Recovery of Patient by Reoperation. Case. P. Priani and O. Da Rin—p. 196

\*True Clinical Significance of Rovsing's Sign. F. M. Bustos and C. J. Lebron—p. 206

**Coagulation of Blood and Jaundice**—Bustos states that patients who are suffering from jaundice show also a tendency to hemorrhages. The general opinion that the hemorrhagic disturbance is caused by the impregnation of the tissues by biliary substances is erroneous. The author made observations on several patients in whom a surgical intervention on the biliary tract had been performed. Some patients in the group had jaundice and others had not. The author found that drainage of the bile after cholecystostomy or choledochotomy induces a retardation of the coagulation time of the blood which is proportional to the amount of bile eliminated. The retardation is sometimes a half hour or more and is not related to the presence or absence of jaundice. If the eliminated bile is reintroduced in the stomach or duodenum of the patients by means of a duodenal sound, the coagulation time of the blood diminishes. The author emphasizes the fact that the cause of the hemorrhagic tendencies in the course of jaundice depends on the failure of bile to reach the intestine, which results in insufficient absorption of fats by the intestine with consequent diminution of the supply of vitamins to the body and disturbances of the calcium metabolism. It is not, as yet, ascertained which of the phenomena mentioned are caused by the absence of bile salts in the intestine and which of them are caused by that of bile pigments.

**Significance of Rovsing's Sign**—Bustos and Lebron state that Rovsing's sign is of no value in the diagnosis of appendicitis. Their opinion is based on a review of the literature and

cases from their own practice. The authors conclude that the sign is often missing in cases of appendicitis and may be present in intestinal diseases of patients who had an appendectomy. Two cases of the latter instance are reported in detail by the authors.

### Prensa Medica Argentina, Buenos Aires

25 271 320 (Feb 9) 1938

Paraffin Filling and Thoracoplasty. A. A. Ramondi, M. Albertal, M. V. Brea and J. A. Taiana—p. 271

Auriculoventricular Dissociation by Interference in Diphtheria. Pathogenic Study. A. Rissotto, I. Natin and Cornelia D. Rin—p. 274

\*Ucko's Reaction in Liver Diseases. D. Boccia and J. Gamalero—p. 281

Therapeutic Value of Different Treatments of Erysipelas in One Hunter's Cases. C. A. Videla, A. Squassi and C. Fisch—p. 284

Paracoccidial Granuloma. Case. J. W. Tobias and F. L. Niffo—p. 286

Gonadotropic Substance in Pregnancy. A. Gonzalez Collazo and E. O. Columbo—p. 301

**Ucko's Reaction in Diseases of Liver**—Boccia and Gamalero state that the Takata-Ara reaction for liver functions is based on alterations of the proteins in the blood serum. The technic is as follows: Into four clean, small test tubes, each containing 0.2 cc. of the serum, are measured 0.1, 0.15, 0.2 and 0.25 cc. of a 0.36 per cent solution of anhydrous sodium carbonate. After shaking, the same quantities of a 0.5 per cent solution of mercury bichloride are added. The tubes are shaken again and allowed to settle for an hour and a half. Four different types of reaction can be observed: 1. A negative reaction, which is shown by the absence of precipitation in all four tubes or at least in three tubes, which remain translucent or slightly turbid. 2. Reaction 1 (+), the so called weakly positive reaction, which is shown by the presence of slight precipitation in the first three tubes. 3. Reaction 2 (++), the positive reaction, with precipitation in all four tubes. 4. Reaction 3 (+++), the intensely positive reaction, in which a thick precipitate forms in all four tubes immediately after addition of the reagents. The authors made the test on twenty-seven patients who had diseases of the liver and in twenty-five who had diseases other than those of the liver. They found that the test gives intensely positive results in ascites of atrophic cirrhosis, positive results in some cases of cancer, regardless of the location of the disease, and negative or slightly positive results in stasis of the liver and in the majority of cases of diseases other than those of the liver. The reaction of the third type shows in all cases of serious liver involvement and does not take place in diseases other than those of the liver. The authors conclude that the test is of value for diagnosis of liver insufficiency, especially if it is performed in association with other tests. In addition to the advantage of an easy technique, the gradation of the results of Ucko's modified reaction offers the possibility of evaluating with exactness the intensity of insufficiency of the liver.

### Archiv fur Kinderheilkunde, Stuttgart

113 164 (Jan 21) 1938

\*Cure of Rickets by Single Large Intramuscular Dose of Vitamin D. A. Nadrai—p. 1

\*Pseudocavities in Children with Pneumonia. H. Wissler—p. 16

Time of Detachment of Remnant of Umbilical Cord in Premature Births. A. Kollmann—p. 24

Pneumothorax Following Aspiration of Foreign Body (Orange Seed). S. Kaludjerski—p. 31

Psyche of Nursing and Small Child. H. Koeppe—p. 34

Relations Between Vitamins, Hormones and Ferments. W. Dirschel—p. 39

**Rickets and Vitamin D**—Nadrai points out that Harnapp recommended the intramuscular injection of a single large dose of vitamin D, namely, between 12 and 15 mg., for the treatment of rickets. After reviewing the literature on the parenteral administration of vitamin D, the author describes his own experiences with the administration of the single large dose. His observations were made in thirty cases. His object was to determine the smallest dose which, in intramuscular injection, will cure rickets. He used the different types of vitamin preparations that are available on the Hungarian market and found that the freshly opened preparations are well tolerated if administered intramuscularly. The oil is absorbed within a few days. In some moderately severe cases he administered 10 cc., that

is, the equivalent of 3 mg of vitamin D (150,000 international units), while in other cases he administered as much as from 15 to 20 cc (4.5 to 6 mg). He found that 10 cc, or 3 mg, was generally adequate for the cure of mild and moderately severe cases and that from 15 to 20 cc was required for the more severe cases. In extremely severe cases and in those complicated by serious infections, such as pneumonia or influenza, the single large dose proved ineffective, probably because the organism is incapable of adequate storage of the vitamin. In such cases, which have to remain under medical control anyway, it is better to repeat the intramuscular injection after several weeks rather than to increase it. The author concludes that the administration of a single large dose of vitamin D is especially suited for prophylactic therapy.

**Pseudocavitation in Children with Pneumonia**—Wissler emphasizes that not every round area of lesser density in thoracic roentgenograms corresponds to an intrapulmonary cavity. His investigations on spontaneous pneumothorax, in which pseudocavitation is quite frequent, induced him to study this problem. He defines a pseudocavity as the roundish, sharply defined area of lesser density in shadowy portions of the lung, which, in view of the clinical picture, cannot be the result of destructive processes of the lung. He does not include those phantom formations which are the result of faulty exposure and those fine annular shadows which remain after certain pleural disorders. His observations were made on cases of pneumonia. He detected the pseudocavities in children of all ages, the youngest being 10 months and the oldest 13 years of age. They appear during or after defervescence and accompany the breakup of the infiltrate. They disappear rather rapidly, without leaving traces. Rather meager anatomic observations seem to indicate that the pseudocavities are caused by a circumscribed emphysema. If their pneumonic nature has been established, they have to be differentiated from pulmonary abscess and encapsulated pneumothorax. The decisive factors are the clinical aspects and the course of development.

### Klinische Wochenschrift, Berlin

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Electrocardiogram in Disturbances of Ovarian Activity D Scherf—p 44

Question of Regulation of Blood Sugar G Schlomka and H Frentzen—p 48

Diapillary Stasis Hypertension K E Rothschild—p 51

\*Disturbance in Secretion of Gastric Juice During Inflammatory Skin Diseases and in Chronic Administration of Histamine F Voss—p 54

\*New Medium for Mycologic Cultures A M Memmesheimer—p 56

Autonomic Innervation of Bone Marrow K Morikawa—p 57

### Disturbance of Gastric Function During Skin Diseases

—Voss says that histamine, which is present in body tissues particularly in the skin and which is produced in increased quantities during inflammatory processes, exerts an intensive action on the gastric secretion. Since some cutaneous disorders are accompanied by a disturbance in the gastric secretion, he and H Voss examined the gastric juice of 200 patients with inflammatory skin diseases. They found practically a parallelism between the acidity of the stomach and the degree of inflammation and of the extension of the skin disease. The more acute and extensive the inflammation, the higher were the values of gastric acidity. It was assumed that the hyperacidity was the result of a liberation of larger amounts of histamine, or of a similarly acting substance, by the inflamed cutaneous tissues. In chronic skin diseases, however, hypoacidity or anacidity was observed. Since gastritis and ulcers can be produced by chronic injection of histamine, it may be assumed that the histamine-like substances liberated in the course of skin diseases may lead to an impairment of the gastric glands. Summarizing his observations in animal experiments, he says that the stomach of rats reacts to a single histamine injection with an increase in gastric juice and in acidity. In case of chronic administration of histamine, the quantity of free acid decreases to complete anacidity. Then it could be observed that the inhibiting action of histamine on the activity of the gastric glands is dependent more on the continued and uniform administration of histamine than on the absolute quantity of histamine, that is, the conditions were like those that were found in the inflam-

matory skin diseases. The authors also experimented with roentgen and quartz lamp irradiations. The object was to determine whether the gastric glands could be influenced by an experimentally produced chronic inflammation of the skin. It was found that two weekly roentgen irradiations, continued for a month, as well as quartz lamp irradiations, resulted in complete anacidity of the gastric juice.

**New Medium for Mycologic Cultures**—Memmesheimer says that a shortage of peptone was an inducement to develop, in addition to the commonly used culture mediums of Sabouraud and of Gruetz, one in which peptone was not necessary. It was found that the skin of guinea pigs can be utilized in the preparation of a mycologic culture medium. The hide of a guinea pig (skin and hair) is cut to pieces and is cooked for from thirty to forty-five minutes in caustic potash solution. To from 75 to 80 Gm of hide, 20 cc of a 30 per cent solution of caustic potash and 75 cc of water are added. The cooking with the caustic potash solution dissolves hair and epithelium, and the rest consists of connective tissue. The material is filtered through muslin and neutralized with hydrochloric acid. While this is done, hydrogen sulfide escapes. Then follows filtration through filter paper or cotton. To prepare the culture medium, the filtrate is diluted with water to make 1,000 cc. Then 40 Gm of maltose and 18 Gm of agar are added. This culture medium corresponds to the "milieu d'épreuve" (test medium) of Sabouraud and Gruetz (medium I). However, the extract of 75 or 80 Gm of guinea pig hide, following neutralization and filtration, may be diluted with water to make 500 cc and then combined with 9 Gm of agar. This medium corresponds to the "milieu de conservation" (medium of preservation) of Sabouraud and Gruetz (medium II). If the extract is not to be used at once, it may be concentrated, dried and pulverized. After describing how culture mediums are prepared from this powder, the author discusses his experiences with the culture mediums. Materials from forty patients with a suspected mycosis were tested simultaneously on the culture mediums of Sabouraud, Gruetz and the described medium I. In sixteen of these patients the cultures yielded epidermophyton (usually Kaufmann-Wolf), but whereas the described medium showed this fungus in fifteen cases, the other two mediums showed it in only ten cases. Material of eight of the fungus-positive cases was tested also on the maltose-free medium II. This medium likewise yielded the fungus. The new medium proved valuable also in studies on the dissemination of epidermophytosis. The author says that growth was detectable sooner on the new medium than on the medium of Gruetz. *Microsporon audouinii*, *Microsporon flineum*, *Achorion quinqueangulum*, *Trichophyton gypseum*, *Trichophyton rosaceum* and *Epidermophyton rubrum* likewise showed typical growth and color formation on the new medium I. On the new medium II (free from maltose) growth and color formation were less profuse.

### Munchener medizinische Wochenschrift, Munich

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Etiology of Epidemic Influenza P Schmidt and A Karies—p 86

\*Beriberi in Germany Broder and Engel—p 88

\*Temporary Pulmonary Infiltrates as Hyperergic Tissue Reactions H J Busche—p 90

Modification of Crystallization Picture of Copper Chloride by Tuberculous Material E Peiffer—p 92

High Incidence of Hereditary Deafness in Family with Huntington's Chorea G Kloos—p 94

When to Use Water Soluble and When to Use Oil Soluble Preparations in Parenteral Quinine Therapy E F Rissmann—p 96

**Beriberi in Germany**—Broder and Engel say that completely developed avitaminoses are comparatively rare in Germany. If avitaminoses do develop, the prolonged adherence to an extremely restricted diet plays a part and the carbohydrate portion is especially important. As early as 1884 Takaki of Japan pointed out that there seems to be a malproportion between proteins and carbohydrates in the development of beriberi. In recent years Abderhalden and Wertheimer have discovered relations between vitamin B<sub>1</sub> and the carbohydrate metabolism. After citing observations from the literature in which one-sided diets consisting chiefly of carbohydrates

led to the development of avitaminoses with polyneuritic symptoms, the author reports a case of his own observation. It concerned a girl, aged 14 years, who, in order to lose weight, had restricted her food intake to from two to four slices of bread with margarine and sugar. With this she drank highly sweetened cocoa prepared with water. This food she took in the evening, during the day she ate nothing, but she performed rather hard physical work in a tree nursery. Her weekly consumption of sugar was between five and six pounds. The girl continued this absurd diet for three months. Gradually her appetite decreased, she had attacks of nausea, suffered from constipation, had cardiac palpitation and felt extremely fatigued. Swelling of the ankles and legs appeared. Several weeks later, numbness developed in the legs, and walking and standing became insecure. After hospitalization the girl at first refused adequate amounts of a mixed diet, but gradually her food intake became normal and she even requested fruits and vegetables between meals. Specific therapy in the form of a daily injection of vitamin B<sub>1</sub> was begun immediately after admission to the hospital. In addition to this, the vitamin was given also by mouth in the form of tablets. After an initial loss in weight (elimination of the retained water) the girl gained weight. The numbness in the legs persisted for weeks and the insecurity in walking was still observable after two months. Formication and drawing pains in the legs and attacks of tachycardia occurred from time to time. The author suggests that with the absurd diet other deficiencies besides that of vitamin B<sub>1</sub> play a part, however, as the result of the excessive intake of sugar the deficiency in B<sub>1</sub> was most pronounced.

**Temporary Pulmonary Infiltrates as Hyperergic Tissue Reaction**—Busche says that localized hyperergies are much more frequent than generalized allergy. He points out that recently disorders have been observed, which become manifest in a rapidly disappearing infiltration of the lungs and a high eosinophilia of the blood and which probably belong to the group of localized hyperergies. The author observed a man, aged 47, who in working near a circular saw had lost a thumb, three fingers and part of the hand. The wound healed without complications, but after about three weeks of treatment the patient suddenly acquired fever, the cause of which was at first obscure. The patient's general condition was not impaired, he complained only of a slight cough. Roentgenologic examination of the thoracic organs disclosed a massive infiltration in the region of the middle field on the left side. However, in spite of the positive roentgenologic aspects the physical examination revealed hardly any sign of disease of the lung. The small amount of yellow sputum was found to contain some eosinophilic cells and a mixed bacteriologic flora, but never tubercle bacilli. Examination of the blood disclosed a mild hypochromic anemia. The total number of leukocytes was 10,300. The differential blood count revealed an enormous eosinophilia of 29 per cent, and the sedimentation speed of the blood was greatly increased. Intravenous and oral administration of calcium was followed on the second day by disappearance of the fever, and the roentgenologic control revealed that, aside from a slight intensification in the vascular outlines, the pulmonary infiltrate had disappeared. Further blood control showed that the eosinophilia increased still more and reached a total of 38 per cent. Several successive roentgenologic examinations of the lung gave completely negative results, as did also the sputum tests for tubercle bacilli. The sedimentation speed of the blood became normal again, but there still existed an eosinophilia of 7 per cent. The peculiar course of the disease together with the severe eosinophilia suggested an allergic reaction, and cutaneous tests were made to determine the offending allergen. However, all such tests were negative. The author cites another case in which a temporary pulmonary infiltrate concurred with an increase in eosinophils. He thinks that this syndrome might be more frequent than was assumed and cites similar observations by Löffler. Moreover, Engel in Japan observed cases of so-called priver cough during the months of May and June. This disorder, which is considered as an allergic reaction to pollens, is likewise accompanied by temporary pulmonary infiltrations. The author says that Löffler regarded the process as a benign tuberculous one and that Swiss authors observed pulmonary infiltrates of short duration in

patients with tuberculosis. However, he emphasizes that in the majority of cases a relationship to tuberculosis has not been proved and that more observations will be necessary to arrive at a complete causal explanation.

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Occupation and Cancer M. Strenmler—p. 121

Gas Gangrene Infection After Injection G. Jungmichel, M. Kirscher and H. Habs—p. 129

Keratitis Parenchymatosa F. Schueck—p. 132

Preliminary and After Treatment in Gastric Operations O. Hanz—p. 136

Familial Occurrence of Leukemia F. Gottlebe—p. 140

\*Method of Staining Erythrocytes in Urinary Sediment A. W. Erdi—p. 141

**Staining Erythrocytes in Urinary Sediment**—Endtz says that, if there are only a few erythrocytes in the urinary sediment, errors may be caused by bodies such as yeast cells, algae, lymphocytes and other formed elements. The author succeeded in finding a method which will avoid such errors. He prepares two stock solutions: the first consists of 1 part of benzidine in 100 parts of diluted alcohol, the second consists of 20 parts of a 6 per cent solution of acetic acid in 100 parts of distilled water. The reagent that is used for staining the erythrocytes is composed of 1 cc of the first solution, 2 cc of the second solution, five drops of a 3 per cent solution of hydrogen peroxide and 9 cc of distilled water. Following centrifugation of the urine, the fluid is carefully poured off so that as little as possible remains in the sediment. Then a drop of the reagent is put into the centrifuge tube and, by slight tapping, is mixed with the sediment. If a urine contains much sediment, it is advisable to place a drop of it on a slide and then add a drop of the reagent. The two drops are mixed by drawing the cover glass in the oblique position back and forth over the slide. Inspection of the stained preparation reveals that all formed elements of the blood have turned blue, whereas yeast cells and all other elements not belonging to the blood remain unstained. The erythrocytes show a uniform blue with only a few isolated granules. The leukocytes show a blue nuclear stain, the protoplasm contains many blue granules. These granules may be so numerous and their coloring so intense that the nuclear stain may disappear among them. The large lymphocytes can be recognized by their round nuclei and by their protoplasm with many granules. The small lymphocytes are differentiable from the erythrocytes by their large number of granules. If a more distinct differentiation of the erythrocytes and leukocytes and of the various types of leukocytes is desired, it is advisable to use a reagent with a higher acetic acid content. The author recommends the following reagent: 0.5 cc of concentrated solution of benzidine (as indicated), three drops of a 3 per cent solution of hydrogen peroxide, five drops of distilled water and 55 cc of a 1 per cent solution of acetic acid. This reagent is best for the differentiation of the different types of blood corpuscles, but, if only erythrocytes are looked for in the sediment, the first mixture is the best.

### Zeitschrift für Kinderheilkunde, Berlin

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\*Question of Action of Vitamin A in Treatment of Rickets H. Burchard—p. 249

Changes of Carbohydrate Metabolism After Fat Intake E. Hollischer—p. 257

\*Clinical Value of Wheal Test in Nutritional Disturbances of Nursing Infants L. Schauer—p. 262

Sedimentation Speed of Erythrocytes in Abdominal Tuberculosis in Children E. Sommerfeld—p. 303

Observations on Twins with Niemann-Pick's Disease E. Freudenberg—p. 313

\*Clinical Experiences with Vitamin D<sub>2</sub> S. Folberth—p. 329

Mode of Action of Apple Diet E. A. Voss—p. 391

**Action of Vitamin A in Rickets**—Burchard investigated whether it is advisable to treat rickets simultaneously with vitamins A and D. Since it was demonstrated that cod liver oil is of superior value in the treatment of rickets it was of interest to learn whether vitamin A is concerned in the antirachitic action of cod liver oil. The author points out that erroneous conclusions have been drawn in other investigations on this problem because it was overlooked that the preparation of vitamin A that were used contained also vitamin D. The

author treated one group of rachitic children with a preparation of vitamin A which contained also vitamin D<sub>2</sub> and a second group of children with vitamin D<sub>2</sub> only. In the latter group he used the same preparation, but the vitamin A contained in it had been destroyed. He found that the preparation of vitamin A which contains vitamin D<sub>2</sub> is an effective remedy for rickets, whether it is given unaltered or after destruction of the vitamin A content. The preparation in which the vitamin A had been destroyed produced the same increase in the anorganic phosphorus of the serum, but a greater increase than did the unchanged preparation in the roentgenologically demonstrable calcium deposits. The quantities of vitamin D<sub>2</sub> required for the cure of rickets were below the quantities of vitamin D, that is, of the form of vitamin D which is contained in irradiated ergosterol.

**Wheal Test in Nutritional Disturbances of Nurslings**—Schauer directs attention to the McClure-Aldrich wheal test and describes her experiences with this test in nurslings. First she reports experiences with the test in forty-two healthy and eutrophic nurslings and then in fifty nurslings with nutritional disturbances. She emphasizes that the wheal test should be made always under the same conditions, preferably while the children are fasting, and the site of injection and the technic should be always the same. In eutrophic and healthy nurslings the wheal time (time required for its disappearance) is determined by the age of the children, that is with increasing age the resorption time was retarded. Nurslings with nutritional disturbances but without clinical signs of loss of water had a prolongation of the wheal time. The wheal time was still longer in the nutritional disturbances that were accompanied by an acute or chronic exsiccosis, and the slowest disappearance of the wheal was observed in cases in which exsiccosis and atrophy concurred or when an intoxication existed. The author stresses that a single determination of the wheal time does not permit definite evaluations but that repetition of the test at intervals of several days provides a good insight into the water economy of nurslings with nutritional disturbances. In premature infants the wheal time is shorter than in full-term infants, even in later months, that is, the standard age values do not apply to prematurely born infants. A shorter than normal wheal time was detected also in nurslings with tetany, icterus and eczema, in a case of extensive edema after burns, in two cases of myxedema and in one case of diabetes insipidus. The author reaches the conclusion that if the wheal test is employed with the necessary criticism and care if an exact technic is used and evaluations are not based on single determinations, and if attention is given to secondary factors that may influence the disappearance of the wheal the method is helpful in the evaluation of nutritional disturbances in nurslings.

**Clinical Experiences with Vitamin D<sub>2</sub>**—Folberth demonstrates that the crystallized vitamin D<sub>2</sub> which is obtained from irradiated 7-dehydro-cholesterol is identical with the antirachitic substance of cod liver oil. It is not identical with the vitamin D that is produced by the irradiation of ergosterol. The author cured various forms of rickets with vitamin D<sub>2</sub> and found that it was well tolerated. However, he has not yet demonstrated whether the antirachitic action of vitamin D<sub>2</sub> is definitely superior to that of vitamin D.

### Wiener klinische Wochenschrift, Vienna

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Rare Forms of Syphilis of Nervous System D Paulian—p 161

Physiotherapy P Grogg—p 165

Differential Diagnosis and Therapy of Pregnancy Anemias V Foderl—p 168

\*Short Wave Treatment of Endocrine System of Diencephalon and Mesencephalon J Samuels—p 170

Charges in Cancer Mortality in Vienna S Peller—p 176

\*Does Excitement of Examination Influence the White Blood Picture? H Kellner—p 178

Treatment of Various Forms of Retention of Urine P Blatt—p 180

**Short Wave Diathermy in Endocrine Disorders**—Samuels points out that the use of organ preparations during endocrine disturbances is a substitution therapy. Although this form of treatment may have a prompt effect it is usually not lasting, for whereas the deficiency of one gland is compensated the related glands and the hypophysis are made inactive by the substitution therapy. The author shows that it is much better

to reestablish the equilibrium in the disordered endocrine system by stimulation or inhibition. He says that Dausset tried to accomplish this by general short wave therapy and that since Dausset's death he has continued to study the use of short wave therapy for this purpose. He shows that before short wave therapy can be begun the following points have to be clarified: 1 What gland is diseased? 2 What is the condition of the hypophysis and its surroundings? 3 Is the disturbance due to hypofunction or to hyperfunction? 4 Is the existing disorder reparable or irreparable? The author clarifies these factors by determining the reduction time of the oxyhemoglobin, as index of the hormone content of the blood, before and after stimulation of the different endocrine glands. To accomplish this he uses the cycloscope, the construction and operation of which he described in the *Journal of Obstetrics and Gynecology of the British Empire* (44 1036 [Dec] 1937, abstr THE JOURNAL, Feb 26, 1938, p 696). The figure, which is determined before the stimulation of the glands, is the initial number. If the function of the endocrine glands is normal, stimulation in the condenser field causes practically no changes. However, in case of dysfunction of an endocrine gland, the reduction figure that is determined immediately after the stimulation shows a greater or lesser deviation from the normal figure. In women the figures are usually determined in the following order: initial number, numbers resulting after stimulation of the thyroid, the hypophysis, the ovaries and the breasts and, if necessary, the numbers resulting after stimulation of the adrenals and the pancreas. The different figures are entered in a diagram and the resulting curve is designated as the endocrine electrodiagram. This diagram is valuable not only for the diagnosis but also for therapy. The author says that hypofunctional disturbances are cured by stimulating first the complementary gland and then the actually dysfunctioning gland, either by local or by general short wave therapy. In disturbances due to hyperfunction, he resorts first to indirect inhibition by applying short wave treatment to the antagonistic gland and after that he treats the hyperfunctioning gland in the condenser field. He was able to demonstrate that in many endocrine disturbances the primary cause of the disorder is in the mesencephalon, the diencephalon and the hypophysis. If short wave therapy is applied to the hypophysis, not only this organ but the entire mesencephalon is influenced and thus the various centers and tracts. The author points out further that there are numerous disorders in which a hypophysial involvement has not been suspected heretofore, he mentions migraine, bronchial asthma, diabetes mellitus and gastroduodenal ulcers. He was able to demonstrate, for instance, that following short wave treatment of the hypophysis the sugar content of the blood of patients with diabetes mellitus decreased rapidly.

### Excitement of Examination and the Leukocyte Count

—Kellner directs attention to Farris's investigations of behavior of the white blood picture of students before, during and after examination and before and after football games. Farris found that the lymphocytes were greatly increased during the examination and before the game and believed that this was the result of the excitement caused by the examination or the game. In view of the fact that even extreme mental exertion causes only extremely slight metabolic changes and almost no changes in the white blood picture, Kellner decided to verify the observations made by Farris. Reasoning that the excitement is even greater before the examination than during it, the author examined the white blood picture of forty-five students on the day before the examination and a few minutes before. Because these tests did not corroborate the observations made by Farris additional tests were made on twenty students. In the latter group tests were made before and during the examination. In these cases a slight decrease (3 per cent) was observed. From these observations the author concludes that the excitement of the examination does not cause any essential morphologic changes in the white blood picture. In trying to explain the discrepancies between his own observations and those of Farris he points out that mistakes in counting or the absence of excitement in his subjects can be ruled out, because of the rather large number examined and because some of the students, who clearly showed signs of excitement, were free from lymphocytosis.



**Klinicheskaya Meditsina, Moscow**

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- Clinical Anatomic Trends in Pathologic Anatomy in the U S S R for the Last Twenty Years A I Abrikosov—p 1195  
 Soviet Pathophysiology of the Last Twenty Years D E Alpern—p 1203  
 Clinical Aspects of Internal Diseases of the Last Twenty Years M M Gubergits—p 1211  
 \*Clinical Evaluation of Mechanism of Blood Transfusion Kh Kh Vlados—p 1268  
 Biologic Characteristics of Arterial Blood B Lidskiy—p 1288  
 \*Clinical and Anatomic Similarities of Amyloid Lipoid Nephrosis M I Frankshteyn—p 1323

**Mechanism of Blood Transfusion**—According to Vlados, there are a number of components other than the erythrocytes the importance of which in the blood transfusion is but little understood. Among them may be mentioned the hormones, the ferments and the electrolytes. The distribution of the albuminous components of the blood plasma, the degree of their assimilation and of breaking down both in the transfused blood and in that of the recipient have not been clarified. The author states that the results obtained with repeated blood transfusions in the treatment of anemia at the clinical division of the Moscow Institute of Hematology suggest that the dose, as well as the interval between the transfusions, has an important part. The effect seems to follow the law of Arndt-Schultze, namely, that weak stimuli increase physiologic activities while strong stimuli abolish them. In anemias resulting from failing hematopoietic function of the organism, the amount of blood transfused and the intervals between the repeated transfusions may result either in stimulation of hematopoiesis or in its inhibition. In order to avoid the negative phase, it is necessary to allow not less than from three to four days between the transfusions. Doses of from 200 to 300 cc are quite sufficient. The lower the color index of the blood, the more striking is the effect of the transfusion. The anemiatopoietic and hypoplastic forms of anemia require numerous transfusions. The hemoglobin in these types, even after repeated transfusions, lags behind the number of the erythrocytes. To obtain the maximum therapeutic effect, the author advises, in addition to repeated transfusions, administration of large doses of iron with, in some cases, liver therapy. Blood transfusion is not indicated in the first days of an acute infectious disease. Indications for transfusion may appear in the subacute and the chronic state. Acute articular rheumatism and scarlet fever constitute the only exceptions. In these, transfusions are indicated in the first few days.

**Similarities of Amyloid-Lipoid Nephrosis**—Frankshteyn reports twenty-three personally observed cases of generalized amyloidosis and an analysis of similar cases from the post-mortem material of two large general hospitals in Moscow. This material embraces 285 deaths from chronic diseases complicated by amyloidosis. The cause of death was pulmonary tuberculosis in 36 per cent, chronic suppuration in 42 per cent (58 per cent of these were pneumosclerosis with bronchiectasis), visceral syphilis in 85 per cent, chronic colitis in 3 per cent, neoplasm in 3 per cent, recurring rheumatic endocarditis in 2 per cent, lymphogranulomatosis in 0.4 per cent and undetermined in 5.1 per cent. The clinical and microscopic studies of this large material reveal that nontuberculous pneumosclerosis with bronchiectasis has a prominent part in the etiology of amyloidosis. Enlargement of the liver and spleen and diarrheas are not necessary clinical symptoms of general amyloidosis. Pure amyloidosis of the kidneys is seldom seen at necropsy. It is characterized, when present, by the absence of clinical manifestations. Renal amyloidosis is associated in the majority of cases with lipoid nephrosis. The processes develop independently in the presence of the same chronic infections and manifest themselves clinically as amyloid-lipoid nephrosis. The lipoid nephrotic component leads to dropsy, albuminuria and cylindruria. In a number of cases, however, the amyloid-lipoid nephrosis, despite the progression of the lesion may run without edema but with albuminuria. Amyloidosis of the glomerular arterioles results in a secondary contraction of the glomeruli with symptoms of renal insufficiency. The rate of the development of amyloidosis and the destruction of the glomeruli vary. In the majority of the cases azotemia develops in the state of the large white kidney, resulting in part from the overloading of the organism with the broken-down albumi-

nous bodies. The clinical course of the amyloid lipoid nephrosis presents, as a rule, three stages: adequate renal function, lowered function and insufficient renal function. The lethal event in the majority of the cases takes place in the second stage and depends principally on the progression of the basic chronic infection. Renal amyloidosis affects the arterioles of the parenchymatous organs and as a local process does not lead to hypertension and to hypertrophy of the left ventricle of the heart or to pathologic alterations in the fundus of the eye. The cardiovascular syndrome is present only when the amyloid lipoid nephrosis is associated with arteriosclerosis or with nephritis. Microscopic hematuria was present in 40.3 per cent of all the cases of amyloid-lipoid nephrosis and in the majority of the cases was caused by the passage of the erythrocyte through the unruptured walls of the vessels.

**Nederlandsch Tijdschrift v Geneeskunde, Amsterdam**

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- Herpes Zoster with Facial Paralysis P H Kramer—p 258  
 \*Traumatic Arachnoiditis G G J Rademaker—p 264  
 Rectoscopic and Bacteriologic Examination of Women with Gonorrhea R Kooij and A C Ruys—p 272  
 \*Plethysmometry of Nose in Diagnosis of Patency of Sigmoid Sinus and of Jugular Vein H A L Van Dishoeck—p 277  
 Irradiation with Hertzian Waves W A G Van Everdingen—p 284  
 \*Some Infants with Low Temperatures Refuse to Nurse J T Rademacher—p 289

**Traumatic Arachnoiditis**—Rademaker maintains that post-traumatic adhesions of the leptomeninges are more frequent than is generally recognized. This is proved by the fact that the complaints of the patients whose histories are reported in this paper were all erroneously diagnosed. Frequently the complaints are interpreted as "compensation neurosis." The author describes four cases of traumatic arachnoiditis. These patients frequently complain of headaches or pains in the neck, back or loins, and the complaints are often aggravated by physical exertion. They may appear more than a year or even several years after the trauma. Other symptoms are sensory disturbances of a radicular extension, reflex disturbances and impairment of the motility. The author shows that a correct diagnosis is possible only with the aid of a test with iodized oil. Surgical treatment produces cure or considerable improvement in some of the cases.

**Plethysmometry of Nose and Patency of Sigmoid Sinus and Jugular Vein**—Van Dishoeck directs attention to the fact that, in case of obstruction of one jugular vein by means of unilateral compression of the neck, the inferior concha of the same side of the nose becomes swollen, because the venous blood coming from the endocranium causes a congestion of the pterygoid plexus. In some cases this swelling can be detected by anterior rhinoscopy, but by means of an especially constructed nasal plethysmometer the swelling can be detected in nearly all these cases. The author describes and illustrates this nasal plethysmometer. He shows that because the swelling can be detected in nearly all cases, it can be utilized as a symptom of obstruction of the jugular vein and of the sigmoid sinus in cases of thrombosis, of pressure by brain tumor or brain abscess and of congenital absence of the sinus or jugular vein. In this case the symptom will be negative on the side of the obliteration and strongly positive on the other side.

**Infants with Low Temperatures and Refusal to Nurse**—Rademacher points out that in infants who refuse to nurse a low temperature is often the cause, for the rectal temperatures of such nurslings have been found to be 36.2 C (97.2 F) or even lower. Warming by means of hot water bottles has been found to be effective to counteract the aversion to nursing. After citing several cases that he himself observed he reports studies on this problem, which were carried out on a larger material. On the basis of the body temperatures and the nursing record, this material is divided into four groups. To the first group belong nurslings with low temperatures who refused to nurse, to the second group belong those with low temperatures who nursed normally, to the third group belong those with normal temperatures who nursed satisfactorily and to the fourth group belong those of normal temperature who refused to nurse. The last mentioned group included infants who were born prematurely, some who were under eight some with mongolian idiocy and weak nurslings with low vitality.

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# A SURVEY OF BLOOD TRANSFUSION IN AMERICA

The occasion of the second International Congress for Blood Transfusion (Paris, September 1937) served as a stimulus for inquiry into the present status of blood transfusion in America. It was planned to obtain the necessary information through a questionnaire to be circulated among all hospitals approved for internship by the American Medical Association. Accordingly, the board of medical control of the Blood Transfusion Betterment Association of New York City authorized the following questionnaire, which was mailed to about 700 hospitals, 350 of which responded.

- (f) Is a test for syphilis done just prior to the transfusion?
- 6 Selection of compatible donor
  - (a) By blood grouping alone
  - (b) By direct matching of donor and recipient alone
  - (c) Use of a preliminary blood grouping, followed by a direct matching
- 7 (a) Are "universal donors" used? rarely? frequently?  
(b) Is any test done to exclude dangerous universal donors (persons having high-titered agglutinins in their serum)?
- 8 If figures are available, what is the incidence of post-transfusion chills?
- 9 Accidents following transfusions
  - Number
  - Nature and possible cause
- 10 General remarks for more detailed data or information on any of the above items or on features of the subject not indicated above, if necessary, attach another sheet

## SUMMARIZED RESULTS OF THE QUESTIONNAIRE

1 *Blood Group Classification*—The summary of the replies to the question on classification is given in table 1

The results show that the Moss numberings are most widely used at the present time, the Jansky and the International classifications are employed with about equal frequency. However, when hospitals using more than one of the classifications are included (table 2), the International classification is employed in 23 per cent, while the corresponding value for the Jansky numberings is 16 per cent.

According to Kennedy's<sup>1</sup> report of 1929, the International classification was employed in 495 per cent of 525 hospitals, in a study of ninety-nine hospitals, Mason<sup>2</sup> in 1931 reported an incidence of 5 per cent. Our study shows an increase in the use of the International classification during the past eight years, but it is disappointing to record that the majority of the hospitals still employ a confusing arbitrary nomenclature,<sup>3</sup> in spite of the fact that in current scientific publications the International classification is used almost exclusively.

Obviously, any increase in the use of the O, A, B and AB terminology is a fortunate circumstance, since this classification, in contrast to the previous arbitrary numbers, is based on the universally accepted Landsteiner theory of two agglutinable substances, A and B, in the red cells. Thus, when one refers to the blood group of a universal donor as group O, it is made evident that the red cells are inagglutinable by virtue of their lacking in agglutinable substances, and it is

1 Kennedy J A Blood Group Classifications Used in Hospitals in the United States and Canada J A M A 92 610 (Feb 23) 1929

2 Mason J M J Med 12 60 (April) 1931

3 It may be noted that the International nomenclature was officially accepted by the National Research Council and the American Association of Immunologists in 1927 and by the League of Nations in 1928.

clear that persons with blood of groups A, B and AB have the corresponding agglutinable substances in their corpuscles

It is hoped that the present defect in nomenclature will be corrected in the near future by (1) teaching of the International classification in the medical schools and (2) regulation of donor agencies by the various local boards of health in conjunction with the state

TABLE 1—Blood Group Classification

	Number	Percentage
International	39	11.14
Jansky	44	12.57
Moss	206	58.00
International and Moss	31	9.43
International and Jansky	4	1.14
Jansky and Moss	4	1.14
International Jansky and Moss	4	1.14
No answer	19	5.43
Total	350	99.99

TABLE 2—Classification Used Alone or in Combination

	This Report		Kennedy's Report (1921)	
	Number	Percentage	Number	Percentage
International	80	27.46	26	4.95
Jansky	56	16.00	101	29.33
Moss	241	69.72	405	77.71

or county medical societies. The latter measure indirectly stimulates the use of the International classification, which is recorded in the donor's identification book along with the systems by numbers. These two factors serve to explain the greater use of the International classification in New York City hospitals (fifteen of thirty-seven hospitals). Unfortunately the hospitals associated with the majority of American medical schools do not as yet employ this classification. In one hospital affiliated with a Western medical school the International nomenclature is taught to the students but the Moss classification is employed in the hospital records.

**2 Number of Transfusions Performed in 1935 and 1936**—Because of the difficulty of obtaining accurate hospital statistics, a detailed statement cannot be given. However, of 191 hospitals from which data were received, 77 per cent showed a decided increase in the number of transfusions in 1936 over the number in 1935. The remaining 23 per cent of the hospitals showed but a small decrease.

**3 Method of Transfusion**—Of the 348 hospitals which replied to the question, 136 employ but one method, and 172 use two methods in varying degrees of frequency, in thirty-six hospitals three different procedures are available and in four hospitals each one of the four recognized methods is used.

The summary of the compiled data is given in tables 3 to 7 inclusive.

The citrate method is most popular in American hospitals for several reasons, but particularly because no special precautions are believed to be required.

Curiously enough four hospitals, three of them in Ohio and one in Tennessee, employ exclusively the procedure with paraffin-lined containers. These four hospitals have bed capacities of 142, 270, 210 and 246 and in 1936 performed sixty-two, 340, 152 and 213 transfusions. Aside from Ohio, the procedure still has a certain degree of popularity in Massachusetts,

where the original method was described by Kump and Brown, and to a lesser extent in the Great Lakes region and also in California.

The Lindeman multiple syringe method is the choice of a number of hospitals in New York and New Jersey. This is not surprising in view of the past activity of Lindeman in popularizing his simple and efficient method in hospitals in and around New York. Analysis of the answers as to the use of some form of syringe valve apparatus for direct transfusions revealed that at least twelve different instruments are employed in American hospitals. It is noteworthy that the simpler types are by far the most popular. A small number of hospitals reported using several varieties of instruments. It is not the purpose here to recommend any particular instrument, undoubtedly a number of effective instruments with manually operated valves are commercially available. However, it seems necessary to condemn any apparatus based on the principle of the automatic ball-in-valve, on the ground that the formation of small clots in the ball-in-valve may result in the injection of the recipient's blood into the donor. As previously pointed out by Hartman<sup>4</sup> with such instruments there is no guaranty of protection to the donor when patients with syphilis or any other infection of the blood stream are given transfusions.

It is significant that slightly less than half of all hospitals employ two transfusion methods. The most frequent combination, used in 136 of 350 hospitals, is the citrate method and one of the syringe-valve procedures. The ready availability of two methods apparently makes for a satisfactory and flexible arrangement, enabling the transfusionist to select a method which is considered to be more convenient or suitable in certain cases.

A small number of hospitals volunteered the information that the citrate method is employed in their pediatric service. For patients suffering from infec-

TABLE 3—Summary of Transfusion Methods

Hospitals using one method	136
Hospitals using two methods	172
Hospitals using three methods	36
Hospitals using four methods	4
No answer	5
Total	350

TABLE 4—Hospitals Using One Method

Modified blood (citrate)	13
Unmodified blood	3
Syringe valve	17
Lindeman (multiple syringe)	1
Paraffin lined containers	4
Total	38

tions of the blood stream, the citrate method is used, apparently because it affords absolute protection to the donor. On the other hand, some of the advocates of the direct method believe that the advantages of the citrate method are more apparent than real and maintain that whole blood is preferable for patients with septicemia.

**4 Who Performs the Transfusions?**—Without going into detailed figures we may say that the questionnaires

<sup>4</sup> Hartman, F. W. Instruments for Blood Transfusion. J. A. M. A. 84: 915 (March 21) 1925.

revealed that in the majority of the hospitals the transfusions are performed by the residents and interns under the supervision of either a resident or an attending physician

In only a small number of hospitals is the transfusion placed in the hands of a team of a small number of experienced workers. This ideal method of handling transfusions is popular in the metropolitan area of

TABLE 5—Hospitals Using Two Methods

Citrate and syringe valve	130
Citrate and Lindeman	21
Citrate and paraffin lined containers	17
Syringe valve and paraffin lined containers	2
Syringe valve and Lindeman	2
Total	172

TABLE 6—Hospitals Using Three Methods

Citrate syringe valve and paraffin lined containers	18
Citrate syringe valve and Lindeman	16
Citrate Lindeman and paraffin lined containers	2
Total	36

New York. Of thirty-seven hospitals in New York City, twenty reported that a transfusion team is in charge.

In more than one third of all hospitals the transfusions are not in the hands of any one department but can be done by any member of the attending staff. One obvious disadvantage of this open policy lies in the difficulty of supervision. One cannot expect expert performance from physicians who carry out transfusions only occasionally. In a good number of instances transfusions are performed by the ever changing house staff with no supervision whatever.

5 (a) *Donor Agencies*—Of the 350 hospitals surveyed, 304 answered this question. Of these, 137 have their own list, recruited from their employees or from selected persons, fifty-three call donors from commercial agencies and sixty employ donors from their own list as well as from commercial agencies. Non-commercial donor agencies operated by the local board of health, the county medical society or both are located in but six large cities and two smaller ones. A small number of hospitals have at their disposal lists of volunteers, members of organizations such as the American Legion and the police and fire departments. The use of the radio for obtaining volunteers was mentioned in some instances.

(b) *Donors for Indigents*—Of 318 hospitals which answered this question, 190 supply blood to indigent patients, for the most part at the expense of hospital, local or state funds.<sup>5</sup> No provision for supplying blood gratis to indigents is made in eighty-five hospitals, and forty-three other institutions offer this service only occasionally and when it is most urgently needed.

(c) *Cost of Blood per Hundred Cubic Centimeters*—The 319 answers to this question show that in just about one half of the institutions the cost of blood is \$5 per hundred cubic centimeters, in one third the cost is from \$7 to \$10. In a number of institutions the rate is somewhat higher for private patients.

<sup>5</sup> In one of the state hospitals in the Middle West between \$25,000 and \$30,000 is spent each year for this purpose. In this hospital (bed capacity 954) about 1,000 transfusions were performed in 1936.

(c) *How Often Are Wassermann, Kahn or Kline Tests Repeated on Donors?*—Of the 350 hospitals circularized 136 did not answer this question. However, in a number of these 136 a routine test for syphilis was performed immediately prior to the transfusion. Ninety hospitals reported that such tests are performed on their donors at intervals varying from one to three months. In 112 institutions these tests are done at intervals of six months or longer.

(f) *Is a Test for Syphilis Done Just Prior to Transfusion?*—The results in table 8 show that in 178 of the hospitals some form of test for syphilis is performed just prior to the transfusion. In the remaining 172 hospitals, either there is gross negligence or the factor of safety depends on the frequency of routine tests for syphilis carried out by the organization supplying the donors.

A correlated study of the frequency of routine tests for syphilis and of the test done just prior to transfusion reveals that 179 institutions attempt to protect their recipients from transfusion syphilis by the routine use of the pretransfusion test, of this group fifty-three hospitals are supplied with donors whose blood is examined at intervals of six months or less. In ninety-one hospitals the pretransfusion test is omitted and reliance is placed, so far as the serologic test for syphilis is concerned, on a routine test performed every six months or at shorter intervals.

There remains a group of seventy-one hospitals that are supplied by donor agencies where blood is tested but once, at varying intervals<sup>6</sup> or at intervals greater than six months, and these same hospitals fail to have any test for syphilis performed just prior to transfusion. In this group there is, therefore, a serious danger of the transmission of syphilis. (It is obvious that a careful physical examination of the donor is another necessary prerequisite. Unfortunately, this item was not included in the questionnaire.)

TABLE 7—Frequency of the Four Methods Used Alone or in Combination

Citrate	306
Syringe valve	189
Lindeman	62
Paraffin lined containers	46

TABLE 8—Is a Test for Syphilis Done Just Prior to Transfusion?

Test always done	178
Frequently or usually	36
Only on volunteer donors	26
Only on professional donors	5
Only on new professional donors	4
Test not done	83
No answer	18
Total	350

6 *Selection of Compatible Donor*—The compiled data on this subject are recorded in table 9.

Undoubtedly the routine procedure of obtaining a compatible donor by a preliminary blood grouping followed by a direct matching of the donor's cells and the recipient's serum, has been firmly established. This is evidenced by the fact that 310, or 89 per cent, of the 350 hospitals employ the two procedures in their proper sequence.

<sup>6</sup> Replies to the questionnaire from this group include the answers varies, seldom, occasionally and frequently.

Five hospitals report the use of a blood-grouping test alone.<sup>7</sup> While this may be a safe procedure in most cases if the grouping serums remain potent and sterile, most workers are agreed that direct matching is an additional necessary precaution which serves as a check on the blood-grouping tests. It is especially urgent in view of the fact that the Moss and Jansky classifications are so confusing. There is still another reason for routine matching, it is the only known method of detecting the presence in the recipient's serum of

TABLE 9—Selection of Compatible Donor

Blood grouping alone	5
Direct matching alone	30
Both grouping and matching	310
No answer	5
Total	350

atypical agglutinins which may be active against the prospective donor's cells

In thirty hospitals grouping of the patient's and the donor's blood is usually omitted and selection of the donor is made solely by the direct test, which determines that the donor's cells are not agglutinated by the recipient's serum. If the additional precaution (as a rule omitted) is taken to determine that the donor's serum does not clump the recipient's cells, the two bloods belong to the same group, but such tests do not identify the group. While such a procedure insures a selection of compatible donors, it is frequently laborious and time consuming. It should be pointed out that direct matching alone will fail to detect the incompatibility—which is not so very rare—due to weak agglutinins in the recipient's serum and weak agglutinogens in the donor's cells, for instance the incompatibility shown by a recipient of group O whose serum contains a weak anti-A and a donor of group A, subgroup A<sup>2</sup>. The advantage of a preliminary grouping lies in the fact that with the use of potent grouping serums such incompatibility would be readily detected.

Consequently it seems essential to perform grouping tests with potent serums and, after selecting a donor of the same group as the recipient, to perform a direct matching of the latter's serum and the prospective donor's cells. The results of direct matching should confirm the compatibility. If the grouping is correct, any clumping in the direct matching will reveal atypical agglutinins in the patient's serum active on the donor's cells. In this event one must select another donor, whose cells are not sensitive to the action of the atypical agglutinin. (Many workers believe that it is not necessary to test for the absence of atypical agglutinins in the donor's serum which may be active against the recipient's cells.)

As already mentioned, when direct matching alone is employed, the groups of the persons involved remain unknown. Yet it is curious that twenty-six of the thirty hospitals depending on direct matching alone said in the questionnaire that they use one or another of the blood group classifications

<sup>7</sup> In two of these hospitals direct matching is apparently never done (The number of transfusions performed in 1936 in these two hospitals is 351 and 340 respectively.) Of the three remaining hospitals one reported the use of direct matching in a few cases only another that direct matching is done only on the physician's request and the third that the test is performed only when there is doubt as to the blood grouping test. The number of transfusions performed in 1936 in the three hospitals is 120, 230 and thirty seven respectively. No accidents were reported by any of the five hospitals. However another institution reported two severe hemolytic reactions due to mistakes in blood grouping. These occurred before we began to do cross matching in addition to blood grouping. Donors were selected (at that time) by grouping only.

Of the thirty hospitals reporting the use of direct matching only, but three hospitals stated that they do the direct matching both ways, i. e., the more important test of the patient's serum and the donor's cells and also the test of the donor's serum and the patient's cells. It may be assumed that in the majority of the remaining twenty-seven hospitals only the more important cross test is performed. In these instances, the transfusionist does not know when or how often he is using universal donors.

It may be considered remarkable that from this series of thirty hospitals, two severe reactions were reported, details of which are not available. However, it is a well known fact that when incompatible blood containing weak agglutinogens is injected into a patient with weakly acting agglutinins the transfusion may be carried out apparently without untoward results, at least so far as immediate symptoms are concerned.<sup>8</sup>

**7 Universal Donors**—A summary of the answers to questions dealing with the use of universal donors is given in table 10.

A consideration of table 10 shows that more than two thirds of the hospitals surveyed use universal donors "rarely" or not at all. Of seventy-nine (23 per cent) of the hospitals which reported the "frequent" or "moderate" use of such donors, only eight employ a test for the detection of the so-called dangerous universal donor. If one includes that larger group of institutions which use these donors "rarely" or "in emergency," only thirty-nine hospitals use any form of such a test.

In hospitals employing only the direct matching of the recipient's serum and the donor's cells, the transfusionist, as already pointed out, does not know when he is employing universal donors.

Universal donors are frequently used by one group of hospitals, and, in view of the rare application of the test to detect high-titered agglutinins, the dangerous donor must be used occasionally, and possibly with untoward results. In the section on post-transfusion reaction accidents to follow, three such reactions are

TABLE 10—Use of Universal Donors

	No of Hospitals
None used	103
Used rarely	146
Used moderately	10
Used frequently	69
No answer	17
Total	345

attributed to the dangerous universal donor. Obviously, when a professional donor is employed or when a choice of several volunteers is to be made, donors of the same group as the patient should be used. (However, in those exceptionally rare cases in which a transfusion is most urgently required, any one of a previously prepared list of group O donors with low titered agglutinins may be used without any test.)

**8 Incidence of Post-Transfusion Chills**—Obviously in a survey of this character it is not possible to obtain sufficiently detailed data dealing with post-transfusion reactions and accidents. It may be stated also that the great majority of hospitals do not keep records of post-transfusion reactions in readily available form.

<sup>8</sup> Grove E. F. and Crum M. J. J. Lab. & Clin. Med. 16: 237 (Dec.) 1930. Burnham Lyman. Transfusion from a Group II (A) Donor to a Group III (B) Recipient without Fatal Result. Arch. Int. Med. 46: 502 (Sept.) 1930.



However, from the material at hand, it is possible to state that of the 211 hospitals which responded to this question 135 (64 per cent) reported a low incidence of chills, i e, 1 per cent or less, sixty-two (30 per cent) reported an incidence of from 1 to 10 per cent and fourteen (about 6 per cent) an incidence greater than 10 per cent

A study of all hospitals using the citrate method exclusively indicates that these institutions reported either few or no reactions or else a relatively high incidence. This difference may perhaps be explained by the varying care taken in preparing the transfusion apparatus and the quality of the citrate solution employed. The meticulous care required for the successful use of the citrate method is described in detail in the paper of Lewisohn and Rosenthal<sup>9</sup>

**9 Accidents Following Transfusions**—Forty hospitals reported some form of accident that had followed transfusions, altogether there were sixty such accidents (sixteen deaths), which are summarized in table 11

The largest group of accidents was attributable to the injection of incompatible blood. These thirty-six accidents, with six fatalities, were reported from twenty-five institutions. In cases in which the transfusion was completed, or comparatively large amounts of blood were administered, anuria or jaundice were reported, in the majority of the cases, symptoms developed shortly after the transfusion was started

When one excludes three accidents due to the calling of the wrong donor or to the use of a random (non-tested) donor, there remains a group of thirty-three accidents reported by twenty-two hospitals, resulting from the injection of incompatible blood. One hospital, which reported two accidents, selected donors on the basis of blood-grouping tests alone.<sup>7</sup> It is curious, indeed, that in the remaining twenty-one hospitals, which reported thirty-one accidents (with six fatalities), the incompatibility was not immediately detected although each of the twenty-one institutions reports the use of blood grouping followed by direct matching. Therefore one is led to believe that in the vast majority of instances the grouping serums employed are not potent and/or the persons performing the tests are not sufficiently trained

In two cases mild hemolytic reactions occurred in repeated transfusions with the use of the same donor. In another case the recipient had an atypical agglutinin active against the donor's cells. A report of the latter case was recently published by Culbertson and Ratcliffe.<sup>10</sup>

In this connection attention is called to the two accidents that resulted from the calling of the wrong donor. Such accidents have occurred when several transfusions were scheduled to be done within a short period. It is difficult to understand how a donor can be used without the hospital's resorting to any compatibility test whatever

Three accidents were attributed to the use of so-called dangerous universal donors, i e, persons having high-titered agglutinins in their serum. One of these was well described in a case report published by DeGowin.<sup>11</sup> In two of the three cases the recipient had pronounced anemia, in the third case, in which the recipient was suffering from burns, there was probably

concentration of the blood. In two of the hospitals involved, universal donors are used "rarely" and "frequently," respectively, but no test is performed to exclude dangerous universal donors. The third hospital reported the use of such a test only during the past year

Four cases are reported of transmission of disease from donor to patient, three cases of syphilis, in each case from a relative, and one case of malaria.<sup>12</sup> In one case, syphilis was transmitted from father to son. In this hospital donors on its own list are tested for syphilis but once, and no test is made on any donor just prior to the transfusion. In another hospital that reported the transmission of syphilis the present policy is to test the donors on the hospital list every three months and to perform a test just prior to the transfusion on nonprofessional donors only. The third case of the transmission of syphilis was reported to have occurred twelve years ago, at present a pretransfusion test for syphilis is done on all prospective donors

The case of malarial transmission was reported by one of the hospitals in the Middle West

One fatal accident was attributed to allergy. In this instance "a child allergic to cow's milk" was given a transfusion of compatible blood from "a donor who

TABLE 11—Accidents Following Transfusion

	No of Cases	Fatal Cases
Incompatibility	36	6
Universal donor with high titered agglutinins	3	
Transmission of disease	4	
Allergic reaction	1	1
Poor transfusion technic	3	1
Death of donor	1	
Miscellaneous	11	8
Total	60	16

had just previously ingested a large amount of cow's milk." No other details are available

Under poor transfusion technic is listed one fatal case in which the transfusionist gave "too large an amount of blood for the size, weight and age of the child." In another case death was attributed to an embolism, the method employed was a "direct pump transfusion." In the third case a child was given a transfusion through the fontanel, apparently there may have been a subdural or epidural hematoma

Under the heading miscellaneous are recorded four fatal cases of renal insufficiency in which there was no incompatibility. These were reported from the same hospital and were published by DeGowin.<sup>13</sup> In another case death resulted after injection of 150 cc of compatible blood, the postmortem examination did not reveal the cause of death, which was recorded as "embolism or anaphylactoid." In one hospital two patients died with intense hyperpyrexia, the temperature being 112 and 115 F, ten and twelve hours, respectively, after the transfusion. Of the remaining four miscellaneous cases, one was fatal, death occurring after 50 cc of blood was injected, at postmortem examination chronic glomerulonephritis and secondary anemia were observed

Strangely enough, one hospital reported the death of a donor. To quote the report "The donor refused to

<sup>9</sup> Lewisohn, Richard and Rosenthal, Nathan. Prevention of Chills Following Transfusion of Citrated Blood. J A M A 100:466 (Feb 18) 1933

<sup>10</sup> Culbertson, C G and Ratcliffe, A W. Am J M Sc. 192:471 (Oct) 1936

<sup>11</sup> DeGowin, E L. Hemolytic Transfusion Reaction Produced by the Blood of a Universal Donor. J A M A 105:296 (Jan 23) 1937

<sup>12</sup> Another case of transfusion malaria reported from a hospital in the metropolitan area of New York has just come to our attention. The donor (father) gave a history of malaria forty years before with no recurrences. Our attention was recently called to two cases in which blood from syphilitic (profesional) donors was transfused

<sup>13</sup> DeGowin, E L, Osterbagen, H F and Andersch, Marie. Renal Insufficiency from Blood Transfusion. Arch Int Med. 59:432 (March) 1937

rest in the hospital immediately after giving blood, did rather violent exercise soon after and died of acute dilatation of the heart." The autopsy report recorded "fatty degeneration" of the heart.

It may be mentioned once more that the present data cannot furnish an accurate index as to the frequency of transfusion accidents. Undoubtedly some accidents were overlooked or were not reported in the questionnaires.

#### COMMENT AND SUMMARY

This survey reveals some increase in the use of the International classification. This scientific and logical system will undoubtedly become still more popular when a greater number of medical schools teach it rather than the arbitrary, confusing and meaningless numberings. (A survey of medical schools with regard to this question is contemplated.)

The general adoption of statutes, similar to those of New York and Wisconsin, authorizing courts to accept the results of blood tests in paternity disputes,<sup>14</sup> will also stimulate the use of the International system, since it is difficult to discuss the genetics of the blood groups in terms of any other classification.

As already stated, the organization of suitably controlled donor agencies in New York City has been, at least in part, responsible for the frequent use of the International classification by New York City hospitals.

With regard to transfusion methods, it is noteworthy that about one half of the hospitals surveyed employ two methods, the citrate and one or another of the direct methods. Fortunately the great majority of transfusionists employing the direct method use either the multiple syringe procedure or one of the simpler forms of apparatus which are manually operated, and have avoided any apparatus in which the blood flow is regulated by a ball-in-valve mechanism.

In this country transfusions are for the most part performed, at least in ward cases, by members of the intern staff, under the sometimes inadequate supervision of a resident or member of the attending staff. Of course the ideal situation would appear to be that in which a transfusion team is employed in close association with the laboratory. However, with a rapidly changing house staff, such as is found in the great majority of hospitals, this apparently is believed to be possible only to a limited extent. Yet even under such conditions it is, in our opinion, feasible and practical that this work be done under the direct control of a small number of trained workers who instruct each new group of interns as they enter the hospital. Furthermore, the persons in charge might then form the liaison between the various hospitals, the local health department and medical societies to form a cooperative organization for the purpose of regulating professional donors and to serve as a center for the study of problems related to blood transfusion.

Some such cooperative action is required, since, as this survey reveals many institutions lack adequate control of syphilis in both professional and volunteer donors. Until American hospitals have at their disposal donors from carefully regulated agencies, it seems essential for each hospital to perform a recognized test for syphilis immediately prior to the transfusion. This, however, does not in any way relieve the transfusionist from the responsibility of a careful physical examination of the donor.<sup>15</sup>

Although the routine practice of selecting a compatible donor by a blood-grouping test of the prospective donor's cells, followed by a direct matching of the donor's cells and the patient's serum, is well established, reference to the section on post-transfusion accident, nevertheless, reveals that incompatibility of the blood still accounts for numerous avoidable accidents. It is probable that mistakes in selecting donors are attributable to poor laboratory technique in general and in particular, to the use of grouping serums that are not sufficiently potent. Unfortunately the source of the grouping serums was not investigated in this questionnaire, however, judging from our experience, it can be stated that in many institutions insufficient effort is taken to obtain potent serums.

Many unfortunate accidents might easily be avoided if a cooperative organization of hospital, medical society and local health authority, such as that suggested, would undertake to teach recognized laboratory procedures for compatibility tests. Such an organization might act as a local "registry" to which atypical blood could be sent for study and grouping and where transfusion accidents, so neglected at present, could be recorded and analyzed. Because of the widespread and increasing use of transfusions, these services, along with the control of the professional donor and measures to prevent transmission of disease by transfusion, are urgently necessary in the present American hospital program.

Beth Israel Hospital

### THE BLOOD TRANSFUSION BETTERMENT ASSOCIATION OF NEW YORK CITY

ORGANIZATION AND FUNCTIONING OF THE ASSOCIATION AND ITS BLOOD DONOR BUREAU

DE WITT STETTEN, M.D.

Chairman of the Board of Medical Control and Vice President of the Board of Trustees of the Association

NEW YORK

The Blood Transfusion Betterment Association of New York City, with its Blood Donor Bureau was founded in 1929 under the auspices of the New York Academy of Medicine and with the aid of a small initial grant from Mr John D Rockefeller Jr. It is an expansion of the work of the Cooperative Blood Donors Bureau established at New York Hospital by Dr Arthur F Coca in response to a demand by hospitals and physicians for professional donors who have been reliably examined and thoroughly tested. Up to that time some individual hospitals and transfusionists had their own groups of donors, who were more or less carefully examined and tested, but most of the unsupervised and uncontrolled donors were supplied by commercial agencies, a large proportion of whose donors were frequently recruited from the less responsible elements of the community. Little consideration was shown for the welfare either of the donor or of the recipient. It became apparent that, in order to protect not only the patient from the receipt of incompatible or diseased blood but also the donor from ruthless exploitation and improper technical treatment, a more extensive community control was advisable. It was felt that, if a larger group of institutions and physicians were willing to cooperate in this matter by

<sup>14</sup> Levine Philip Wisconsin Law on Blood Tests J A M A 105 1370 (Oct 26) 1925

<sup>15</sup> Rein C R Wise Fred and Cukerbaum A R The Control and Prevention of Transfusion Syphilis J A M A 110 13 (Jan 1) 1938

Read in part at the second International Congress on Blood Transfusion Paris Sept 29 1937

employing donors through one agency, much could be accomplished. A large list of donors, including those with the rarer types of blood, would always be available, and they would always be under proper control.

The association is incorporated as a non-profit making organization. Its services are available to all the hospitals and physicians of the city. A board of trustees of nine members, most of whom are physicians and hospital executives is in control of the association. Professional supervision of the activities is vested in a board of medical control, thirteen physicians appointed annually by the board of trustees, to whom it is responsible. Five of the members represent, respectively, the New York Academy of Medicine, the New York Pathological Society, the department of health, the department of hospitals and the five county medical societies of greater New York. Most of the members of the board of medical control are experts either in hematology or in the practical aspects of transfusion or in both, and one of them is Dr. Karl Landsteiner of the Rockefeller Institute for Medical Research, the leading authority on blood grouping and the Nobel prize winner in medicine for 1930. His invaluable advice and assistance are always at the disposal of the association.

In 1930 the association cooperated with the committee on public health relations of the New York Academy of Medicine and the department of health in the formulation of sanitary code provisions for the control of professional blood donors.

#### HEALTH DEPARTMENT REGULATIONS

The sanitary code of the department of health of the city of New York defines the term "blood donor" as a person who offers his blood for transfusion purposes for a fee and lists the regulations by which he is controlled. A donor must be registered by the department of health. He must apply for registration on an official form supplied by the department, and at the time of application he must submit evidence that he has had a thorough physical examination by a duly licensed physician within the previous seven days. A prospective donor must be of normal weight, have normal blood pressure and show a negative reaction to the Wassermann test, given by the department of health. Certificates may not be issued to any person who has a history or symptoms of syphilis or malarial disease or who presents evidence of any disease of the heart, hyperthyroidism, asthma, status lymphaticus, tuberculosis, venereal disease or any other communicable disease or evidence of drug addiction.

At the time of certification, the donor is given an identification and personal record book, to which is affixed the seal of the health department and the date of registration. This personal record book contains a description of the donor and his blood classification, photograph and signature. In addition, there are entered in it the report on the Wassermann test of the blood made by the department of health at intervals of three months, the medical report on the physical examination and the donor's blood grouping. Subsequently there are entered the date of each transfusion, the amount of blood taken at each transfusion, the name of the physician administering the transfusion and the place where it was performed.

Hospitals and physicians not subject to hospital regulations must keep records of all the data pertaining to transfusions, and these records must be open to inspection by the health department.

Not only must the tests for syphilis be repeated every three months, but within the three weeks previous to each transfusion the donor must undergo a medical examination to check his physical condition and the hemoglobin content of his blood which must be at least 85 per cent. Furthermore, immediately prior to the transfusion, the physician making the transfusion must reexamine the prospective donor. If at any time the donor should be found lacking in the qualifications for which he is examined, his license may be revoked.

Except in emergencies only registered blood donors may be used.

In addition to these provisions, the sanitary code contains regulations relative to the control of blood donor agencies. These regulations require the licensing by the department of health of all such agencies, define the term "blood donor agency," and cover all the questions that are pertinent to their control. Agencies must keep records of all donors and the services which they perform. They may employ only donors certified by the health department, and care must be taken that a donor is not used too frequently. Licenses of agencies may be revoked for any violation of the sanitary code regulations.

#### ORGANIZATION OF THE WORK OF THE BLOOD TRANSFUSION BETTERMENT ASSOCIATION

The Blood Transfusion Betterment Association maintains a blood donor bureau, with offices, clinic rooms and laboratories, in a first floor apartment at 39 East Seventy-Eighth Street, New York. The professional management of the bureau is under the supervision of a salaried medical director, at present Dr. Arthur F. Coca, who was responsible for the formation of the association and who now supervises its technical and scientific activities. Dr. Coca is not a full time director but is assisted by a codirector, Dr. Eugene M. Katzin. It is planned in the near future to install in the bureau a full time resident medical director who will have complete supervision over the laboratory technicians. The business management of the bureau is directed by Dr. E. H. L. Corwin, secretary-treasurer of the association and executive secretary of the committee on public health relations of the New York Academy of Medicine.

Clinics for the examination of donors, conducted by thoroughly trained young physicians, generally recruited from the intern staff of one of the larger hospitals and under the supervision of a member of the board of medical control, are held five times a week. Extreme care is used in the examination of donors, and a high standard of physical requirement is maintained. Hitherto only men have been used, but it is planned to establish in the near future a small list of women donors for special needs, such as transfusions to be given to children and to women in religious institutions. The men have been recruited from among students, professional men and workers of all kinds, and they are in a position to answer a call and offer their services at any time of the day or night. Only those who have a telephone are accepted. Once accepted for registration with the bureau, they are kept under strict supervision, and arrangements for their services as donors are made only through the office of the bureau.

The prospective donor receives a preliminary examination for general appearance and suitability of veins, followed by a complete physical examination. The minimum weight acceptable is 150 pounds (68 Kg.). The blood is then taken to determine the blood group, the Wassermann reaction and the percentage of

hemoglobin For blood grouping the bureau uses the International, or the O, A, B and AB, designation established by Dr Landsteiner, because it is generally considered the most practical and the safest "Universal," or O, donors are separately classified into two groups, "safe" and "dangerous"

Until recently the Wassermann test, according to the statute, was regularly repeated by the department of health every six months, and the bureau further controlled the donor by a Kahn test taken every alternate six months, so that the donor received a serum test for syphilitic infection every three months Now that the regulation in the sanitary code has been amended by the department of health to the effect that the department must perform a test for syphilis every three months, the Blood Donor Bureau will control the initial Wassermann test of the department of health by a Kahn test and repeat the Kahn test when the donor returns to the bureau for reexamination after he has been used and before he is sent out for another transfusion It is felt that this method, coupled with a careful physical examination of the donor for evidences of active syphilis by the doctor performing the transfusion, and a rapid Kline test by the hospital laboratory just before the transfusion, is amply sufficient to safeguard against the transmission of syphilis More frequent compulsory tests would be a burden on the donor and might discourage their remaining on the lists

For the hemoglobin determination the Dare hemoglobinometer is used, and no donor is utilized whose hemoglobin falls below the required minimum of 88 per cent If acceptable, the candidate is photographed and application is made for registration at the department of health on a special form issued by the department When the passbook is received from the department the donor is ready to answer calls All donors must carry their passbook when responding to calls The passbook of donors from the bureau is specially stamped with the name and address of the association If for any reason the applicant is rejected by the department of health, he is not accepted for registration by the bureau

Donors are supplied with a pamphlet of instructions to insure cooperation on their part in the mechanics of the service and to give them information as to their conduct, habits and general health They must notify the bureau if they leave their telephones while on call, and a penalty of three months' suspension is imposed for tardy arrival at a hospital Every effort is made to safeguard the donor, as well as the patient, particularly against too frequent donation of blood, infection or the unnecessary cutting down on veins Each donor remains off the active list one week for every hundred cubic centimeters of blood given A notice is pasted in the passbook under the authority of the association, as follows

The "cutting down" on veins of donors supplied by the Donor Bureau of the Blood Transfusion Betterment Association is specifically *prohibited* by the rules of the Association as it is unnecessarily disabling, exposes the donor to the danger of infection, and tends to destroy his veins and render him unfit for further service Doctors using our donors will please observe this rule

Aside from a few trivial local infections of donors and an occasional complaint from a donor that there has been either unskilful puncturing of the vein or cutting down on the vein, there have been no real mis-

haps or accidents to donors in the seven years that the bureau has functioned, and in the past two years there have been no infections or accidents whatever

As of Jan 1, 1938, the bureau has an active list of 1,994 donors They are divided as follows group O, 946, or 47 per cent, group A, 732, or 37 per cent, group B, 232, or 12 per cent, and group AB, 84, or 4 per cent

The bureau functions in the following manner A record of each donor, with the results of his examination and blood typing, is kept in a card file for ready reference A second card index of the donors available and active, listed on different colored cards according to groups, is kept within easy reach of the attendant on duty The service is on a twenty-four hour basis, 365 days of the year Numerous emergency calls are received at the office nightly When a request for a donor is received, entries are made of the name of the patient, the name of the hospital and of the doctor performing the transfusion, or of the private physician, as the case may be, the type of donor needed and the urgency of the call If it should be requested and a specimen of the patient's blood is furnished, the donor's blood is crossmatched with it by means of the Landsteiner technic On receipt of a call the office attendant consults the card index and gets in touch by telephone with a donor who meets the requirements as to type of blood and any other necessary qualifications Subsequently the hospital is given the name of the assigned donor and the approximate time of his arrival Donors are sent by taxicab whenever the time element is especially important, and in all instances an effort is made to avoid unnecessary delay in transit by assigning a suitable donor from as near the hospital as possible

On receiving the telephone message the donor proceeds at once to the hospital, where he reports to the proper office and where his credentials are examined and his type is checked to make certain that he meets the requirements He is then examined, generally by the physician who is to give the transfusion, for evidences of any acute illness, particularly active syphilis If he passes he is usually required to sign a release absolving the hospital from any liability as a result of the donation of blood The following form, from Lenox Hill Hospital in New York City, is the type commonly used

#### To Whom it May Concern

Having been requested by the relatives and friends of to furnish blood for transfusion in her/his case, I hereby declare to do so voluntarily The Lenox Hill Hospital is in no way responsible for any consequences which may arise from the operation connected with the treatment, nor is the Lenox Hill Hospital responsible for any compensation whatsoever in the matter

Name

Witness

The donor's blood is crossmatched with that of the patient before the transfusion is given After the transfusion the donor is expected to rest for an hour He then proceeds to the cashier's office of the hospital, where he is paid for his services at the rate of \$7 per hundred cubic centimeters of blood, with a minimum charge of \$14, even for any quantity under 200 cc This rate has been fixed by the association as a fair compensation The record in the passbook of the amount of blood withdrawn constitutes a voucher

the cashier as well as a guide to the bureau as to the availability of the donor. For its services in supplying a donor, the association charges a flat fee of \$6 irrespective of the amount of blood used, which is billed to and paid by the hospital or private physician using the donor. After a donor has submitted to a transfusion he must remain off the active list for one week for every hundred cubic centimeters of blood given. Before he is used again, or if a three weeks period in which he has not been used has elapsed, he is given a complete reexamination at a bureau clinic, a fresh hemoglobin reading is made and the Kahn test is repeated.

#### GROWTH OF THE SERVICE

To give an idea of the response of the community to the Blood Transfusion Betterment Association, it is only necessary to cite the extraordinary strides made by the association in supplying donors, even through the severe economic depression. Donors have been supplied by the bureau and actually used, annually from 1930 through 1937, as follows: 1930, 3,125, 1931, 4,020, 1932, 4,852, 1933, 4,999, 1934, 5,216, 1935, 5,830, 1936, 6,686, and 1937, 9,280.

As will be seen from these figures, the work of the association has tripled since its formation seven years ago, and it still seems to be growing. All the municipal and most of the voluntary hospitals and numerous individual physicians in greater New York and some in the suburbs and neighboring towns have become its patrons. Private lists of donors kept by hospitals and doctors are gradually being abandoned in its favor. So great has been its growth that it became necessary last fall for the bureau to enlarge its quarters and to rent an additional apartment in the same building for more offices, clinic rooms and laboratory space.

The bureau has been making its own testing serums from high-titered bloods of selected A and B donors. To avoid errors the group A serum is colored red with eosin, and the group B serum is colored with methylene blue.

#### RESEARCH ACTIVITIES

As stated in the articles of incorporation of the association, its aims and purposes are:

The advancement of the science of blood transfusion, the furnishing of voluntary aid, exclusive of medical or surgical advice, to persons in need of blood transfusion, the classification of prospective blood donors and collecting information in regard to the same, the studying of the practice of the transfusion of blood in general, the conducting of investigations, experiments and researches generally to improve blood transfusion, all of the purposes being for the conservation of the public health insofar as it is related to the use of blood transfusion as a therapeutic measure, and the maintaining of a general organization to carry out the above purposes without pecuniary profit.

With these aims in view, in addition to developing a most effective blood donor service and preparing high-titered blood-grouping serums, the association has carried on, with its accumulated surplus funds, numerous other important activities. These have consisted of giving postgraduate training in both the technic of blood transfusion and the laboratory work of blood grouping and blood matching, of sponsoring and financially aiding important research in various aspects of transfusion, and of educating the public generally on the subject of transfusion.

In 1933 a committee on instruction of the board of medical control arranged for a series of lectures to physicians and laboratory workers by experts on the

"Technic of Blood Transfusion" and a second series on "Blood Grouping and Matching" and "Medicolegal Applications of Blood Groups." In addition, the medical director gave seven laboratory demonstrations at the bureau to small groups of physicians and laboratory technicians on "Methods of Blood Grouping and Blood Matching." These demonstrations were repeated recently.

Dr. Arthur F. Coca, the medical director, has made a study of the use of naturally immune and artificially immunized donors in the treatment of certain types of pneumonia. His theory was put to a test at the Harlem Hospital in New York City by Drs. Jesse G. M. Bullowa and William H. Park, under the auspices and with the financial aid of the association, but, unfortunately, did not yield any practical results, and for the time being the study has been abandoned.

Research in regard to the immunization of donors to staphylococcus and hemolytic streptococcus infections is being continued.

Dr. Coca has also made an exhaustive study of the problem of "universal" donors and has developed some new and safer serum tests, on which he reported at the second International Congress on Blood Transfusion in Paris last September.

The bureau is engaged in an extensive statistical study of (1) the indications for transfusion and (2) the causes of unusual post-transfusion reactions.

Under the direction of Dr. Philip Levine of the board of medical control and Dr. Eugene M. Katzin, a survey of the entire transfusion situation in the United States has been made by questionnaire, particularly to find out which method of transfusion is the most popular.

During the past year the association has rendered financial aid to Dr. Joseph Felsen of the Bronx Hospital, New York, in his studies on the use of immunized donors in the treatment of bacillary dysentery, to Dr. Fritz Schiff of the Beth Israel Hospital, New York, in his work on the duration of life of transfused blood in respect to "secretors" and "nonsecretors," to Dr. Thomas Hale Ham of the Thorndike Memorial Laboratory of the Boston City Hospital, Boston, for his research on blood transfusion and its effect on hemolytic processes, and to Dr. Philip Levine of the Newark Beth Israel Hospital, Newark, for his investigation of atypical agglutinins and their bearing on unusual reactions after blood transfusions.

This year a series of short pamphlets, written by members of the board of medical control, will be distributed to members of the medical profession of the city of New York by the department of health with its quarterly bulletin. The titles and authors of these pamphlets are as follows:

"The Indications for Transfusion," by Dr. Reuben Ottenberg  
'Blood Grouping and Blood Matching Technic,' by Dr. Philip Levine

'The Blood Donor Bureau and the Examination of Donors,' by Dr. David C. Bull

'The Accepted Methods of Blood Transfusion,' by Dr. Lester J. Unger

'The Use of Universal Group Donors,' by Dr. Arthur F. Coca

The association has just completed an autochrome moving picture on the working of the Blood Donor Bureau, the technic of blood grouping and matching, and the three accepted methods of blood transfusion, the citrate method, the multiple syringe or Lindeman



method, and the syringe-valve or Unger method. This film was prepared at the suggestion of the Maternal and Child Health Division of the United States Department of Labor and is to be used chiefly to educate general practitioners in the various phases of transfusion. The film was shown at the Paris congress by Dr. Lester J. Unger.

#### CONCLUSION

It is safe to say that the work that has been done by the Blood Transfusion Betterment Association and the recognition which it has received in the city of New York will stimulate the organization of services along the same lines elsewhere. Any city of considerable size with its suburbs or satellite towns can establish a similar organization without great difficulty and with the promise that it will function as usefully as the Blood Transfusion Betterment Association of New York City.

850 Park Avenue

### KIRSCHNER TRACTION IN THE TREATMENT OF MAXILLARY FRACTURES

GLENN MAJOR, D.D.S., M.D., PH.D. IN SURG.  
PITTSBURGH

Numerous methods and mechanical devices have been perfected for the treatment of fractures of the superior maxilla. This fact implies that each appliance does not readily adapt itself to the treatment of all types of maxillary fracture. As in the case of fractures elsewhere, the position of the fragments must be considered before a satisfactory method of reduction can be selected. Furthermore, under certain conditions perfect apposition of the fragments is demanded.

It is a noteworthy fact that a high percentage of fractures of the upper jaw are complicated by fracture of the skull through the anterior cranial fossa. Most of these fractures are compound, projecting through the nose, and nasal drainage of cerebrospinal fluid is usually present. Obviously, the first consideration is the possibility of injury to the brain, due either to laceration or to hemorrhage and the second consideration is the potentiality of intracranial infection in the nature of meningitis, sinus thrombosis or abscess of the brain. The patient should be treated conservatively for at least one week, the treatment being that ordinarily employed for fracture of the skull. In addition the maxilla should be immobilized as completely as is possible with a head-chin bandage, a procedure which is grossly inadequate at best. The nose should be sprayed at frequent intervals with an antiseptic solution, the nature of the solution depending on the preference of the surgeon. At the Western Pennsylvania Hospital, tincture of mercuriolate is employed. The primary principle in the early treatment of fractures of this type is conservatism, with absolutely no manipulation of the fragments. It seems probable that the area surrounding the fracture of the skull is soon walled off by a blood clot, and to manipulate the maxillary fragments in this stage is to reopen the area and thus increase the possibility of intracranial infection.

Another feature demanding attention in the treatment of fractures of the upper jaw is the question of diplopia.

It is amazing the amount of comminution that occurs in the region of the floor of the orbit with no disturbance in normal binocular single vision. This is probably explainable on the basis of an intact suspensory ligament, which may maintain the eye in its normal position despite marked destruction of the bony floor of the orbit. However, if the fracture is accompanied by injury to the facial attachments of the ligament or by laceration of the ligament itself, diplopia often results. It is then imperative that the fragments be reduced accurately, so that the two eyeballs are brought to the same normal horizontal level. Such a fracture is illustrated in figure 1.

A feature of fracture of the maxilla which is peculiar to this injury is the question of involvement of the maxillary frontal or ethmoid sinuses. Rarely does a fracture of the maxilla occur in which the fracture line does not involve one of these sinuses. Fortunately, however, marked sinus infection after such an injury is the exception rather than the rule. It is true that the sinuses transilluminate poorly at first, the cloudiness being due to the extravasation of blood into the cavity in question. Only occasionally does the sinus become clinically infected. This complication, when it occurs, is treated as acute sinusitis without fracture.

One other feature of the maxilla which is worthy of note is the tardiness of union of the bone. Usually at the end of from three to five weeks all splints may be removed, but as a general rule several more weeks or sometimes months, must elapse before complete firm union has resulted. In this regard, fractures of the maxilla differ radically from those of the mandible, in which union is usually prompt.

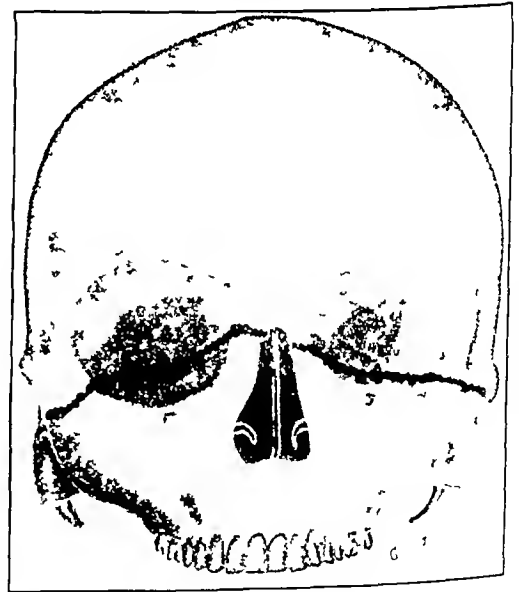


Fig. 1—Comminuted fracture passing through the floor of the orbit.

Another difference between fractures of the maxilla and those of the mandible is the frequency of osteomyelitis at the line of fracture. This complication in the upper jaw is rather uncommon, while in the mandible it occurs in from 5 to 10 per cent of the cases. The explanation of this discrepancy depends on the better blood supply of the maxilla and the fact that when compound fractures of the mandible project into the mouth drainage is inadequate along the fracture line.

In treating fractures of the jaws the occasional surgeon in this field often forgets one obvious fact. The teeth must be brought into occlusion, and the cusps of the teeth should interdigitate in their normal relations. Otherwise the functional result will be poor. When the maxilla or the mandible is fractured, a perfect

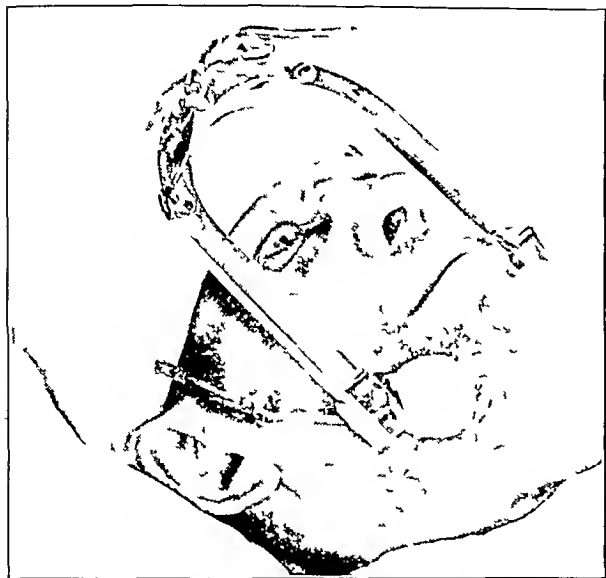


Fig 2—Rubber band traction for the reduction of fractures of the maxilla

functional result usually implies a perfect anatomic result. Exceptions occur when the mandibular ramus or the neck of the condyle is fractured.

In general, three methods are used at present in the treatment of fractures of the maxilla. First, traction is exerted by rubber bands between a head cast or head cap and lugs brought out at each angle of the mouth, the lugs being soldered to a splint which is wired to the upper teeth. In some cases this method is adequate. However, in such cases there is a marked tendency to depression of the posterior aspect of the maxilla. When this method is used in our clinic my associates and I advocate, in addition to the splint, rubber band traction or wiring between the maxillary and the mandibular teeth, to preserve the interdigitating relation between the two sets.

A second method is simply to use rubber band traction between a head cast or head cap and mole skin applied to the skin or a molded, well padded plaster chin piece. In my hands this procedure has been inadequate, as well as uncomfortable to the patient. If it is used, interdental wiring or interdental rubber band traction is again recommended, to preserve the finer relations between the teeth.

A third method is simple interdental wiring or interdental rubber band traction. In case of an incomplete horizontal fracture of the maxilla this is an adequate procedure. It is particularly well adapted to the treatment of unilateral fractures of the alveolus or vertical fractures.

In our clinic we have occasional cases of fracture of the maxilla in which we experience considerable difficulty in restoring the lower fragment to its original position. Because of the delay of a week or ten days before reduction is attempted, we feel that there is considerable organization of the hemorrhage between

the fragments, which renders complete reduction difficult. The patients often complain bitterly of pain with skin traction and the other methods discussed. As a solution to this problem, it occurred to us that skeletal traction would be valuable. At the present time we are treating these more difficult fractures as follows:

One week after the cerebrospinal rhinorrhea has ceased, in the absence of symptoms suggestive of intracranial infection or increased intracranial pressure, a head cast is applied. The method of application is important and is described fully by Ivy and Curtis.<sup>1</sup> A heavy iron wire is incorporated in the cast, conforming to the contour of the head, with a lug emerging from the cast above and anterior to the tragus of each ear. Another smaller wire emerges from the cast in the frontal area. The former wire is used for traction, as discussed later, and the latter is used to attach the spreader to the head cast, as described hereafter.

The mandibular nerve is injected on each side with procaine hydrochloride. After topical anesthesia of the mucous membranes of the upper jaw is secured and this deep nerve of the lower jaw is injected, splints are applied to the labial and the buccal aspects of both the upper and the lower teeth. The splints are wired to three or four teeth on each side above and below with double 26 gage stainless steel wire. Any one of several splints may be used for this purpose, but in our clinic we have used the splint made by the Jelenko Company. This splint is provided with lugs at intervals of about 1 cm, the lugs on the upper splint being directed upward and those on the lower splint being directed downward. The splints are applied at this time so that, after the fracture has been gradually reduced by skeletal traction,



Fig 3—Apparatus for the reduction of fracture of the maxilla by skeletal traction

rubber bands may be applied between the upper and the lower splint and the finer adjustments made to bring the teeth into their original relations.

Under sterile conditions a Kirschner wire is now inserted into the symphysis of the mandible. No additional anesthesia is required, since the mental nerve has been anesthetized. A small nick is made in the skin and

<sup>1</sup> Ivy, R. H. and Curtis, Lawrence. Fractures of the Jaw. Philadelphia: Lea & Febiger, 1931.

extended down to the outer aspect of the mandible. With a bone drill a hole is started in the mandible at a point one-eighth inch above its inferior border and one-half inch posterior to the symphysis, so that injury of the mental nerve is avoided as well as injury of the apexes of the teeth. After the hole has been started, the Kirschner wire is introduced and is brought out on the opposite side of the mandible at a point corresponding to the point of entrance. This wire lies entirely within the mandible and does not pass through the floor of the mouth, being entirely extra-oral. As the wire emerges a small nick is made in the skin. A spreader is attached and dressings applied to the points of entrance and exit of the wire. The spreader is brought up to the frontal area and attached to the cast wire in that position. Traction is not applied to the spreader itself. S-shaped hooks are applied to the Kirschner wire on each side, and similar hooks are placed on the iron wire incorporated in the head cast in the preauricular areas. A turnbuckle (32 threads to an inch) is inserted between the two S-hooks on each side, and the slack is taken up by turning the turnbuckle. Originally we employed rubber band traction, as shown in figure 2, but we find that more gradual traction can be exerted by the turnbuckles. The patient is then returned to his room. The apparatus is shown in figure 3.

Several days should be consumed in effecting the reduction. The nurse is instructed to turn each turnbuckle one eighth of a revolution every three hours. If the patient complains of pain in the region of the fracture the turning is done more slowly. The desirability of this method lies in the fact that reduction can be accomplished gradually, thereby lessening the chance of further injury to the contents of the anterior cranial fossa and minimizing the tendency to reopen sealed off defects in the anterior fossa. Another prominent feature is the almost complete absence of discomfort. It will be evident that the reduction is effected by force transmitted through the mandibular to the maxillary teeth.

After the reduction has been completed, the wire and the spreader are left in place for three or four days, after which the wire, head cast and spreader are removed and rubber bands are applied between the previously placed upper and lower intra-oral splints. The splints are worn for an additional period of from three to five weeks, depending on conditions, after which they are removed.

In this manner the more difficult fractures can be reduced and excellent anatomic and functional results obtained with a minimum of discomfort. A concomitant fracture of the mandible may occasionally be a contraindication to this method. Ordinarily the method is not applicable in the treatment of edentulous persons. We have not used it in treating such persons with the dentures in place.

#### SUMMARY

The method described for the gradual reduction of horizontal fractures of the maxilla, based on the principles of skeletal traction and involving a Kirschner wire, is considered valuable for three reasons. It effects gradual and complete reduction of these fractures, and tremendous force may be exerted, if desired, with practically no discomfort to the patient, the apparatus can easily be applied with the patient under local anesthesia, and there is little possibility of additional intracranial injury or infection, because of the gradual reduction.

7125 Jenkins Arcade Building

## CHEMOPROPHYLAXIS IN POLIOMYELITIS

### THE TECHNIC OF APPLYING CHEMICAL AGENTS TO THE OLFACTORY MUCOSA

LEE SHAHINIAN, MD

J A BACHER, MD

R C McNAUGHT, MD

AND

R R NEWELL, MD

SAN FRANCISCO

The observations of Armstrong and Harrison,<sup>1</sup> those of Sabin, Olitsky and Cox<sup>2</sup> and, especially, those of Schultz and Gebhardt<sup>3</sup> seem to show conclusively that certain chemical agents carefully applied to the olfactory mucosa of monkeys afford considerable protection against infection by subsequent intranasal instillation of poliomyelitis virus. The essential observations which have been made up to the present were summarized in a recent article by Schultz and Gebhardt<sup>4</sup> and therefore

do not need to be repeated here.

This evidence, that a chemical agent such as 1 per cent zinc sulfate confers on monkeys a high degree of resistance against poliomyelitis virus for at least one month after treatment, suggests that such a prophylactic measure may deserve a trial in human beings during periods when poliomyelitis is prevalent. We have concerned ourselves primarily with devising a method of applying the prophylactic

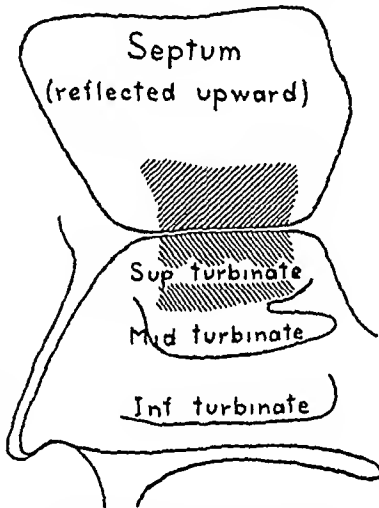


Fig. 1—The shaded areas show the location and the extent of the olfactory membrane (after Effie Read).

lactic treatments that can be easily and accurately used by the physician with a minimum of discomfort and risk of injury to the patient.

#### PREVIOUS PROCEDURES

1 *Atomizer Methods*—Peet, Echols and Richter<sup>5</sup> have made adequate studies of these methods. They determined that the plain atomizer is inefficient and described the use of a special atomizer tip, which is introduced between the middle turbinate and the septum.

From the Departments of Otorhinolaryngology and Radiology, Stanford University School of Medicine.

Prof. E. W. Schultz cooperated in this work and shared with us the allotment of the Jeremiah Milbank Fund for Infantile Paralysis Research.

1 Armstrong, Charles and Harrison, W. T. Prevention of Experimental Intranasal Infection with Certain Neurotropic Viruses by Means of Chemicals Instilled into the Nostrils. *Pub. Health Rep.* 51: 703 (Feb. 28), 1936.

2 Sabin, A. B., Olitsky, P. K. and Cox, H. R. Protective Action of Certain Chemicals Against Infection of Monkeys with Nasally Instilled Poliomyelitis Virus. *J. Exper. Med.* 63: 877 (June), 1936.

3 Schultz, E. W. and Gebhardt, L. P. Prevention of Intranasal Inoculated Poliomyelitis in Monkeys by Previous Intranasal Instillation with Chemical Agents. *Proc. Soc. Exper. Biol. & Med.* 31: 133 (May), 1936.

4 Schultz, E. W. and Gebhardt, L. P. Zinc Sulfate Prophylaxis in Poliomyelitis. *J. A. M. A.* 108: 2182 (June 26), 1937.

5 Peet, M. M., Echols, D. H. and Richter, H. J. Chemical Prophylaxis for Poliomyelitis. *Technique of Applying Zinc Sulfate Intranasally.* *J. A. M. A.* 108: 2184 (June 26), 1937.

tum to insure accurate placement of the solution to the olfactory area. This procedure is difficult and admittedly not free from danger.

**2 Postural Methods**—These methods depend on the localization of the prophylactic fluid in the nasal vault by gravity. Peet and his associates<sup>6</sup> dismissed the routine instillation of the fluid into the nose by dropper as unsatisfactory. They quoted no experimental evi-

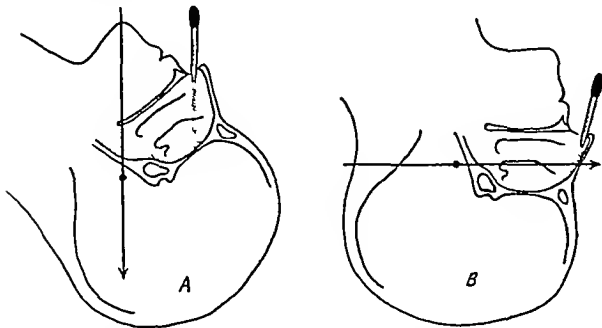


Fig. 2—A, head inverted so that the chin and the auditory meatus are in the same vertical plane (Proetz position). Fluid dropped into the nose primarily seeks the pocket formed by the cribriform plate and the face of the sphenoid bone. The cribriform plate is approximately 40 degrees from horizontal. B, head completely inverted so that a line between the infra-orbital ridge and the external auditory meatus is horizontal. The cribriform plate is approximately horizontal. Fluid placed in the olfactory groove at the limen nasi accurately reaches and fills the inverted common nasal meatus.

dence against this practice except to state that radiopaque material did not regularly reach the olfactory area when sprayed into the nose with an ordinary atomizer, the patient being held in the Proetz inverted position.

A recent paper by Pentecost<sup>6</sup> advised the direct placement of the prophylactic fluid in the olfactory area with an olive tip ureteral catheter inserted between the middle turbinate and the septum, with the patient's head in the Proetz position ("head is inverted so that the chin and external auditory meatus are in the same vertical plane"). His experiments on human volunteers consisted of thus placing a solution of local anesthetic and then testing for loss of sensation in the olfactory area. We used a variation of this method in our basic studies but believe the position to be incorrect and the procedure more difficult than necessary.

ANATOMIC CONSIDERATIONS

The olfactory area covers nearly the whole of the superior turbinate, a small contiguous portion of the middle turbinate and the area of the septum directly opposite these surfaces (fig. 1). The olfactory surfaces enclose approximately the upper third of the common nasal meatus. Hence, if this fissure-like space is filled to sufficient height with a lake of fluid, the olfactory membrane will be completely immersed.

The base line of the skull (Reid's base line) extends from the infra-orbital ridge through the external auditory meatus. It is approximately parallel to the cribriform plate, which forms the bony roof of the nose. When the head is completely inverted, with the base line horizontal (figs. 2B and 3), the cribriform plate becomes the horizontal floor of a narrow trough, the inverted common nasal meatus.

When the chin and ear line is vertical the cribriform plate is tipped at an angle of 40 degrees from horizontal.

Proetz<sup>8</sup> originally described this position for use in the displacement method of filling the accessory nasal sinuses, for which purpose it is excellent. It is unsuited however, for use in applying solutions accurately to the olfactory area. When the head is in this position, the pocket formed by the cribriform plate of the ethmoid process and the face of the sphenoid bone constitutes the angular floor of the nasal chamber (figure 2A). Hence, limited quantities of fluid dropped into the nose will primarily seek this lowest level and, secondarily, reach the level of the olfactory area only if more fluid is added. This additional fluid may be insufficient to cover the olfactory area if the normal sinus ostia are sufficiently patent, as they frequently are, to allow the fluid to escape into the sphenoid and posterior ethmoid sinuses.

The olfactory sulcus is a narrow cleftlike space on the inner surface of the dorsum of the nose, formed by the arched confluence of the septum and the lateral nasal wall. It leads from the nasal vestibule to the roof of the common nasal meatus. Common aberrations in nasal structure do not seem to destroy the integrity of this groove along the vault of the nose, since it is above the attachment of the middle turbinate to the lateral nasal wall and is therefore relatively unaffected by abnormalities of turbinate and septum.

PROCEDURE ADVISED

We have roentgen and clinical evidence to show that when the head is completely inverted, with the base line horizontal (figs. 2B and 3), limited quantities of fluid introduced slowly into the olfactory sulcus at the limen nasi will flow along the groove and accurately fill the inverted common nasal meatus in a selective manner, to a height usually sufficient to immerse most of the estimated olfactory area. This method was found to be as efficient as the more difficult procedure of direct placement of fluid to the olfactory area with



Fig. 3—Proper position and technique for applying prophylactic solution to the olfactory area. The base line of the skull is horizontal.

a delicate ureteral catheter placed between the middle turbinate and the septum.

Previous shrinkage of the nose was found unnecessary. All solutions placed in the nose were found to be better tolerated when previously warmed to body temperature in a water bath. Ordinary medicine droppers, previously calibrated for volume, are used. With a speculum spreading the anterior nares, the tip

6 Pentecost R S. Zinc Sulfate as a Chemoprophylactic Agent in Epidemic Poliomyelitis. *Canad. Pub. Health J.* 28: 493 (Oct.) 1937.  
7 Reid Effie A. A Contribution to the Knowledge of the Olfactory Apparatus in Dog, Cat and Man. *Am. J. Anat.* 5: 17 (Feb.) 1908.

8 Proetz A A. The Displacement Method of Sinus Diagnosis and Treatment. St. Louis: Annals Publishing Company, 1931. chap. 5.

of the dropper is inserted approximately 0.5 cm into the nares, at the anterior angle of the nose, without touching the sensitive mucous membrane walls. The fluid is introduced slowly and steadily, drop by drop. The patient is kept in the inverted position one minute after the last drop has entered.

At the end of treatment, the solution may be emptied by the route of entry by having the patient turn over

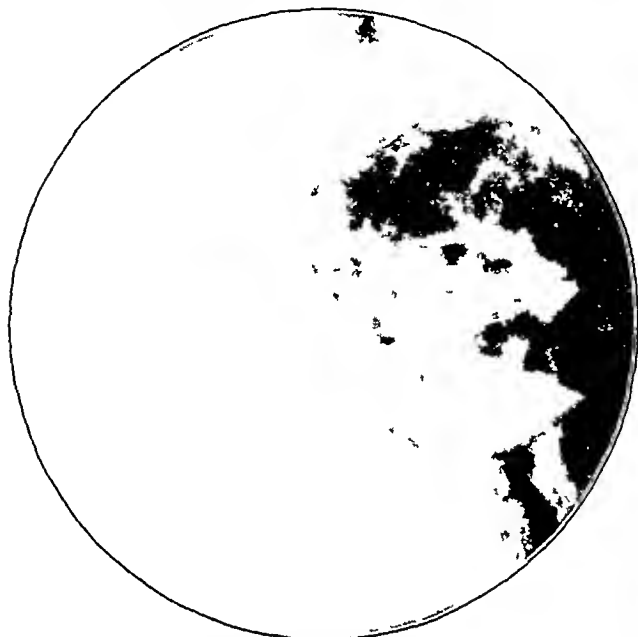


Fig. 4—Lateral view of the skull taken with the subject who was 8 years old in a completely inverted position after 0.4 cc of solution had been placed in each nares. The lower level of the column of radiopaque fluid is contiguous with the horizontal cribriform plate and curves anteriorly on the dorsum of the nose. The upper level is parallel to the cribriform plate (compare with figure 2 B).

into the prone position, lift his head and sniff outward. This procedure prevents unpleasant effects on the throat due to the patient's swallowing the solution.

#### CLINICAL EXPERIMENTS

Our studies indicate that the physical action of a lake of fluid in the olfactory area may be more efficacious than the action of a spray. In several cases 0.25 cc of physiologic solution of sodium chloride was introduced into the olfactory groove by the method described. It was found that this small amount of solution may be largely removed after one minute if the head is kept in the inverted position. To accomplish this, we introduced a delicate No. 6 (2 mm) ureteral catheter, on the end of a No. 22 needle, directly between the middle turbinate and the septum into the vault of the common nasal meatus. Gentle suction with this device recovered the greater portion of the fluid, hazy with shreds of mucus. This indicates that the lake of fluid probably loosens the mucous protective layer over the olfactory mucosa.

#### ROENTGEN STUDIES

Colloidal thorium dioxide (thorium dioxide sol, thorotrast) was used. The physical properties of this solution and those of a solution of 1 per cent zinc sulfate were found to differ not enough to interfere with experimental analogy. The colloidal thorium dioxide does not cause any discomfort in the nose, and children readily permitted experiments using it. It is easily blown out of the nose after the procedure is completed.

Studies were made on thirty subjects, twelve of whom were adults, the rest were children between the

ages of 2 and 14 years. Repeated experiments were made in order to evaluate different positions, methods of application and the quantity of fluid necessary. At first the solution was placed directly to the olfactory area with a fine ureteral catheter and with the patient's head completely inverted, the base line of the skull being kept horizontal. Anteroposterior and lateral films taken after thirty seconds demonstrated that the radiopaque fluid filled the common meatus to a desired height. The result obtained by this method was satisfactory and was thereafter used as a standard in gauging the results obtained by simpler techniques of application. Of these, the simple method described in the paragraph on procedure was shown to give accurate selective filling of the inverted common meatus in all of the subjects.

Trials using the position in which the chin and ear line is vertical with seven children between the ages of 3 and 14 convinced us of the likelihood of filling by this technic the middle meatus and the sinus cell instead of the vault of the common meatus. In three cases part of the fluid was in the vault of the common meatus, but the fluid level resembled that illustrated in figure 2 A. As the completely inverted position is easy to obtain and does not lead to failures, we propose to use it and no other.

In the final trials small quantities of the radiopaque solution were placed in the nose by the method described in the section on procedure. Lateral films of the fluid column in position in the olfactory area show the lower, or cribriform, level to be quite straight, but the upper, or nasal, level is wavy because of capillarity and varia-



Fig. 5—The same subject as in figure 4. Posterior projection of the skull in the completely inverted position shows the accurate and selective filling of the inverted common nasal meatus.

tions of width (fig. 4). The posterior projection shows the maximum height and width of the fluid column and is useful in demonstrating the selective manner by which the fluid attains the proper position (fig. 5).

Each adult subject had a clinical examination of the nasal vault before the roentgen studies. Various grades of deviation of the septum and enlargement of the middle turbinate were noted. Yet in fifteen trials



with twelve adults, 0.25 cc of the solution filled the inverted common nasal meatus to a satisfactory level. Preliminary shrinkage of the nasal mucosa was found unnecessary. The depth of filling averaged 14 mm, in only one case was the height less than 11 mm. The maximum widths of the fluid columns averaged 1.5 mm (from 0.5 to 3 mm), exclusive of one much curved column and one measuring 4 mm in one place and 1 mm in another. In one third of the adults 0.25 cc gave a little spilling over into the middle meatus and the sinus cells.

We found the method equally successful in the treatment of children. The superior portion of the common meatus is wider in younger children. This made it necessary to use a larger quantity of fluid to accomplish a desirable height of filling (approximately 0.4 to 0.5 cc). Clinical examination showed structural deformities to be uncommon in children under 10 years of age. For these reasons the fluid column was easier to demonstrate in the lateral roentgenograms. Precise measurements of the volume necessary to cover the required area showed some variability. For instance, the meatus of one 8 year old child had a maximum width of 5 mm and filled to only 7 mm with 0.25 cc and then up to 19 mm when 0.25 cc was added, yet there was no spilling over. A younger child, 20 months old, with a maximum width of 4 mm, filled to 18 mm with 0.5 cc.

It is therefore evident that if one uses a volume so small that no fluid overflows in any of the subjects then the meatus of some will fill to a height of less than 1 cm, which may let some of the olfactory membrane escape. To get sufficient height of filling in nearly all children, one will have to use about 0.5 cc and let a portion spill over into the middle meatus in most of them.

#### CONCLUSIONS

1 The success of this simple, safe, yet accurate method of applying solutions to the human olfactory area depends primarily on the complete inversion of the head, with the base line of the skull horizontal, and the slow introduction of the fluid along the inner surface of the dorsum of the nose at the vestibular margin.

2 The approximate quantity of fluid necessary to immerse adequately the olfactory membrane by this method has been determined. Five-tenths cc for children under 10 years, 0.4 cc for those between 10 and 14 and 0.25 cc for adults is probably sufficient, a portion of the fluid will overflow in some of the subjects. We have stressed the quantity of fluid to be used because we feel that distress after treatment with chemical agents may thus be minimized.

2361 Clay Street

#### Urban Civilization and Physical Deteriorization —

With the development of urban civilization and industry physical deterioration becomes appallingly common. All sorts of pathologies multiply, enlarged communications bring new and virulent infections, every sort of physical abnormality is increasingly prevalent. The biological status of man seems to decline as his culture accelerates. Medical science intervenes and becomes efficacious in the reduction of suffering and the prolongation of life but, unfortunately also in the preservation of the malformed, the chronically diseased and the biologically inferior—Hooton E. A. Apes Men and Morons New York G. P. Putnam's Sons, 1937, page 293.

## NONOPERATIVE MANAGEMENT OF REMAINING COMMON DUCT STONES

R. RUSSELL BEST, MD

AND

N. FREDERICK HICKEN, MD

OMAHA

During the last few years we have taken many immediate cholangiograms at the operating table and have adopted the rule of making delayed studies in all cases of common duct drainage or biliary fistula. These series of follow-up cholangiograms have added immeasurably to our knowledge of the pathologic physiology of the extrahepatic biliary tract. In our earlier investigations we used an iodized oil as the contrast medium but have since come to believe that the heavy oil obscures the smaller stones. Colloidal thorium dioxide (thorium dioxide sol, thorotrust) is an excellent radiopaque solution, but until certain controversies about its potential dangers are settled we have discontinued its use. From our own experience, dating

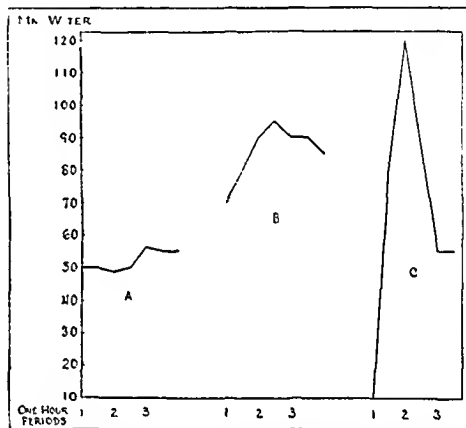


Fig 1—These measurements of intraductal pressure in a case with T tube in the common duct contrast the height of pressure in control periods with the pressure following administration of dehydrocholeic acid.

back three years, we have no regrets and do not believe that colloidal thorium dioxide carries any hazard. We have used a 48 per cent solution of hippuran almost as a matter of routine for the past eighteen months, with gratifying results.

Much to our surprise, we have not infrequently found delayed cholangiograms to reveal stones or foreign bodies such as blood clots, organized debris or inspissated bile in common ducts which were thoroughly explored by palpation, probing, scooping, irrigation and suction at the time of operation. Thus it has been forcibly brought to our attention that these foreign bodies may be left within the duct or may be washed down from the liver. In the past we have not been sufficiently cognizant of the series of events which takes place in the common duct after surgical treatment of the biliary tract. It can be fully appreciated only by those who have determined the postoperative status of the common duct through cholangiography. With this situation in mind, and fully aware of the mortality attending secondary attacks on the biliary tract, we have attempted to dislodge some of these foreign bodies by various nonoperative measures.

From the departments of surgery and anatomy, University of Nebraska College of Medicine.

The first problem is to provide a free exit at the lower end of the common duct through which the foreign elements may pass into the duodenum. The sphincter of Oddi guards this portion of the duct and is probably associated with a pseudosphincter action of the muscular fibers of the duodenal wall itself. If not in an absolute state of relaxation this sphincter mechanism



Fig. 2 (case 1)—This cholangiogram taken some weeks after operation reveals the rounded margin of a stone blocking the lower end of the common duct and the pancreatic duct. Repetition of the injection and a roentgenogram confirmed its presence.

may prevent the egress of the contents of the common duct. It is often found to be unrelaxed and not infrequently is definitely spastic. This motor dysfunction of the lower end of the common duct has been mentioned often in interesting articles by Westphal,<sup>1</sup> Newman,<sup>2</sup> Ivy and Sandblom,<sup>3</sup> and various others. In 1935 we demonstrated by means of cholangiograms that an unrelaxed or spastic state of

the sphincter area could exist in human beings.<sup>4</sup> In 1936 Walters and his group<sup>5</sup> reported their experiments on common duct pressure as affected by spasm of the sphincter. We have also studied the effects of various drugs on this phenomenon and at the annual session of the American Medical Association in 1936 presented a paper<sup>6</sup> on cholangiography and biliary dyskinesia in which the use of glyceryl trinitrate was proposed. Cholangiograms proved that in many instances the sphincter of Oddi immediately relaxed after  $\frac{1}{100}$  grain (0.0006 Gm.) of glyceryl trinitrate was placed beneath the tongue, for the contrast solution readily entered the duodenum.

In the course of these investigations it was noticed that morphine did not produce relaxation and that atropine was not constant in its effects. The reports of Walters and his group on biliary pressure substantiate this observation. They also found that amyl nitrite and glyceryl trinitrate decrease biliary pressure by relaxing the sphincter of Oddi and that morphine causes increased pressure through contraction of the sphincter muscle. Even more recently, Doubilet and Colp<sup>7</sup> have corroborated the effects of glyceryl trinitrate and morphine by further pressure studies. In addition, they have shown that atropine may lessen the tension in the irritable area around the sphincter, which observation concurs with our cholangiographic data.

We have observed, with the aid of cholangiograms that magnesium sulfate on the duodenal side of the choledochal sphincter assists the contents of the common duct to pass more freely into the duodenum. This seems to be true of olive oil as well. We have also reported on the apparent soothing or relaxing effect of warm olive oil or iodized oil when applied to the choledochal side of the sphincter of Oddi through a T tube or fistula.

Since the sphincter may or may not be spastic in the event of a remaining stone in the common duct, the second step in dislodging the foreign body is increasing the pressure behind it. This is easily accomplished by injecting saline solution, olive oil or iodized oil through the drainage tube or fistula if the foreign body is below their level. If, however, these smaller particles are lodged above the opening of the tube or fistula, they may be forced higher into the hepatic duct or into the larger biliary radicles within the liver. Again after these higher stones are once dislodged, they may find their way down to the lower end of the common duct. It is also conceivable that increasing the flow of bile by stimulating its formation will augment the intraductal pressure. Neubauer<sup>8</sup> in 1925 determined by experiments on animals and human beings that sodium dehydrocholate, the sodium salt of dehydrocholic acid increased the secretion of bile. We have therefore been experimenting with pressure changes as affected by dehydrocholic acid, and although we are not reporting in detail in this paper, we are able to say that the flow of bile and the intraductal pressure are heightened after administration of either decholin or pro-cholon, the commercial products of dehydrocholic acid (fig. 1). This added pressure is of greatest value when

the foreign body is below the inlet of the T tube, catheter or fistula in the common duct as it tends to force the impediment through the sphincter during some momentary period of relaxation. The normal intraductal pressure varies with different cases but the usual pressure is somewhere between 50 and 125 mm. of water<sup>9</sup> in postoperative cases. The resistance of the sphincter or breaking point is 150 mm. Doubilet and Colp<sup>7</sup> have



Fig. 3 (case 1)—The described management was instituted but only after repeated attempts over a two months period was a plate obtained which showed the stone. The plate obtained which showed the stone. The edema had to subside before dislodgement could be accomplished. Repeated check-ups confirmed the disappearance of the stone. The pancreatic duct is still visible.

only recently reported cases showing variations in the resistance of the sphincter and the effects of different drugs on this area. These variations were most con-

1 Westphal, Karl. Muskelfunktion, Nervensystem und Pathologie der Gallenwege. I. Untersuchungen über den Schmerz anfall der Gallenwege und seine ausstrahlenden Reflexe. *Ztschr. f. klin. Med.* 96: 22-150 (Jan.) 1923.

2 Newman, Charles. Physiology of the Gallbladder and Its Functional Abnormalities. *Lancet* 1: 783 (April 14), 841 (April 22), 896 (April 29) 1933.

3 Ivy, A. C., and Sandblom, Philip. Biliary Dyskinesia. *Ann. Int. Med.* 5: 115-122 (Aug.) 1934.

4 Best, R. Russell, and Hicken, N. Frederick. Biliary Dyskinesia. *Physiological Obstruction of the Common Bile Duct.* *Surg., Gynec. & Obst.* 61: 721-734 (Dec.) 1935.

5 Walters, Waltman, McGowan, J. M., and Butsch, W. L. Pressure in the Common Bile Duct of Man. Its Relation to Pain Following Cholecystectomy. *J. A. M. A.* 106: 2227-2230 (June 27) 1936.

6 Best, R. Russell, and Hicken, N. Frederick. Cholangiographic Demonstration of Biliary Dyskinesia and Other Obstructive Lesions of the Gallbladder and Bile Ducts. *J. A. M. A.* 107: 1613-1619 (Nov. 14) 1936.

7 Doubilet, Henry, and Colp, Ralph. Resistance of the Sphincter of Oddi in the Human. *Surg., Gynec. & Obst.* 64: 622-633 (March) 1937.

8 Neubauer, E. Cholangiographie. *Klin. Wchnschr.* 4: 976 (Mar.) 1925. *Gallensekretionssteigerung und Gallenentleerung.* *Wien. Arch. f. inn. Med.* 18: 363 (Oct.) 1929.

9 Higgins, G. M., and Mann, F. C. A. Physiology and Anatomy of the Sphincter Mechanism of the Choledochus. *Ann. Surg.* 55: 13 (March 25) 1927. Kitakoji, Yoshihar. Studien über die Funktionen der Gallenblase und des Oddischen Muskels in Bezug auf die Absonderung der Blasenflüssigkeit. I. Mitteilung. *Leber und Gallenblase. Vervorgiften auf die Funktionen der Gallenblase und des Oddischen Muskels.* *Nagoya J. Med. Sc.* 5: 24-29 (Nov. 20) 1930.

spicious in our early cholangiographic studies,<sup>10</sup> ranging from complete relaxation to complete spastic occlusion and even resulting, in one instance in acholic stools over a period of weeks. Edema or inflammation in this region will tend to narrow the outlet further.

The following case illustrates the possibility of dislodging a stone from the common duct by the aforementioned method, after the edema in the sphincter area has subsided.

**History**—O. M., a man aged 35, had recurrent attacks of indigestion for sixteen months, accompanied by pain in the upper part of the abdomen, nausea and vomiting. Morphine was required for relief, and on one occasion he became slightly jaundiced. The week before he entered the hospital he had a severe pain in the upper part of the abdomen which required several injections for relief and within three days he became icteric. When examined the patient was very apprehensive, definitely jaundiced and moderately tender over the gallbladder. His icteric index was 75, the van den Bergh direct delayed reaction was moderately positive, the stools contained bile, the temperature was 99.8 F and the leukocyte count was 10,600. By conservative management the icteric index was brought down to 35 and after five days of observation and preparation

had continued attacks of chills, fever, distress in the upper part of the abdomen and intermittent jaundice. The sinus tract would close, only to reopen and drain pus and bile. This process recurred a number of times.

About ten weeks after the first operation another cholangiogram made by injecting 20 cc of hippuran solution into the fistulous tract, revealed two stones in the common duct which had not been visible on the previous plates. Operation was advised.

**Second Operation**—Several days later an attempt was made to locate and remove the stones from the enlarged common duct. The head of the pancreas was also larger than normal, hard and irregular, as is consistent with marked chronic pancreatitis or new growth. There was a pronounced inflammation around the common duct and the duodenum. The duct was explored as thoroughly as possible in the presence of this inflammatory reaction, finger, probe, scoop, irrigation and suction being used, but no stone could be located or dislodged. By this time the patient's condition was unsatisfactory, contraindicating a transduodenal attack. Therefore a T tube was hurriedly placed in the common duct and the abdomen was closed.

Because of digestion of the tissues around the wound a cholangiogram was not taken for three weeks at which time



Fig. 4 (case 2)—This cholangiogram was made one week after operation. Multiple round filling defects are visible in the common duct. The duct is still patent as the hippuran solution can be seen in the duodenum.



Fig. 5 (case 2)—After the described treatment ten stones were recovered from the stools. The cholangiogram reveals one more stone remaining at the lower end of the common duct.



Fig. 6 (case 2)—After another course of treatment this stone was recovered from the stool and the cholangiogram reveals no more stones in the common duct.

the patient was operated on the diagnosis was cholecystitis, cholelithiasis and stone in the common duct.

**First Operation**—With the patient under spinal anesthesia the gallbladder, thick walled definitely inflamed and adherent to surrounding structures was removed. The common duct was about twice normal size and was angulated at its junction with the cystic duct by inflammatory adhesions. These were freed and the duct was opened. Thorough palpation, probing, scooping and washing revealed no stone. The head of the pancreas was thickened and harder than normal. A T tube was placed in the common duct for drainage.

On the sixth postoperative day a cholangiogram was made by injecting 20 cc of hippuran solution into the common duct through the T tube. No stone was visible, but the sphincter was contracted. This spasm was relaxed by dissolving  $\frac{1}{100}$  gram of glyceryl trimyristate beneath the patient's tongue. The T tube was removed on the tenth postoperative day after a check up cholangiogram which again revealed some sphincterismus but no stone. The patient was discharged from the hospital a few days later to the care of his local doctor with a remaining biliary fistula. During the next two months he

the picture was a little suggestive of a single stone remaining in the ampulla. A recheck four weeks later definitely revealed a stone at the lower end of the common duct (fig. 2). The entire length of the pancreatic duct was easily seen on this plate.

A three day regimen with dehydrocholic acid and antispasmodic drugs was instituted and repeated every ten days. In the intervals the duct was washed out on alternate days with sterile olive oil or Iporodine. With each oil irrigation,  $\frac{1}{100}$  gram of glyceryl trimyristate was placed beneath the tongue.

A follow-up cholangiogram, one month after institution of this treatment showed the stone still present, but the dye entered the duodenum more readily. After a second month of treatment no evidence of a filling defect could be found at the lower end of the common duct (fig. 3).

The T tube was then clamped off, except at night for another thirty days when a recheck showed no indication of a stone in the common duct.

This confirmation warranted removal of the T tube and now, eight months later the patient weighs more than he ever did, feels perfectly well and is back at his regular duties.

Evidently, in this case drainage of the common duct and time were needed for the subsidence of the pancreatic inflammation and then proper measures caused the stone to be dislodged.

10. Hicken, N. F., Best, J. R. and Hunt, H. B. Cholangiography, Visualization of the Gallbladder and Bile Ducts During and After Operation. *Ann. Surg.* 103: 210-229 (Feb.) 1936. Best and Hicken footnote 4 and 6.

We have come to believe that stones are present in the larger biliary ducts of the liver more frequently than is recorded. More detailed examination of the liver at autopsy would support this statement, for during the last year we have demonstrated such stones in two instances but only after thorough search through the liver. One patient had a postoperative stone in the common duct and also unrecognized carcinoma of the kidney. The other patient was one on whom a routine autopsy was performed after he had died of cardiovascular disease.

The following case is presented because it more definitely substantiates the release of intrahepatic stones into the common duct. These stones were detected in the common duct by cholangiograms and then were successfully dislodged by the regimen described.

**CASE 2—History.**—For five years R. F. C., a married woman, aged 28, had been having attacks of nausea and vomiting which were associated with loss of appetite, slight distress in the upper part of the abdomen but no true pain. Removal of her appendix did not alleviate the symptoms but rather the attacks became more frequent. Three days before entering the hospital she was suddenly seized with a sharp pain in the right upper quadrant, which radiated to the right scapular region. The paroxysm subsided after the administration of morphine. She presented no history of jaundice but



Fig. 1 (case 2).—The group of ten stones were recovered from the stool after the first course of treatment. The single stone was recovered after the second course.

for some years she had noticed a sensation of pressure immediately after meals which would last for half an hour and was not relieved by sodium bicarbonate.

Examination revealed a well developed young woman in no apparent distress. The only positive evidence was slight tenderness over the gallbladder. No rigidity and no definite masses were palpable. Her temperature and pulse were normal. The white blood count was 10,400 and the icteric index 10.

**Operation.**—The large distended gallbladder was adherent to the duodenum. The common duct appeared two or three times normal size, with no stones palpable in its lumen. After the gallbladder was removed it was incised and found to contain about 200 pea-size stones. The common duct was opened through the stump of the cystic duct but palpation, probing, scooping, suction and irrigation revealed no stones. A catheter was then placed in the common duct and the abdomen was closed.

One week after operation a cholangiogram made with 20 cc of hippuran solution revealed multiple pea-size stones in the common duct (fig. 4). A cholangiogram made several days later gave the same picture.

**Nonoperative Measures.**—As soon as the patient's condition warranted it, the previously described therapeutic measures were begun. After the first course of treatment ten stones were recovered from the stools. The cholangiogram was repeated and one stone was found remaining in the ampulla

(fig. 5). A second course of treatment resulted in passage of the eleventh stone (fig. 6). Two subsequent check-ups gave negative results (fig. 7). The fistula soon closed, and eight months later, the patient feels perfectly well.

We have been able to depict apparent foreign bodies in two other common ducts by postoperative cholangiograms, but these defects were inconstant in appearance as well as irregular in shape. It is highly possible that they were small blood clots or lumps of inspissated bile which were later dislodged. In any event, they disappeared under the described treatment. In a recent case, although no stone could be palpated, the postoperative cholangiogram revealed a large stone within the common duct. Repeated efforts to dislodge it have been ineffectual, and ether has also failed to break it up. Another operation is to be advised.

#### SUGGESTED TECHNIC FOR REMOVAL OF REMAINING COMMON DUCT STONES

When a stone is located in the common duct by delayed cholangiography, the following three day regimen is begun. On the first day a  $\frac{1}{100}$  grain tablet of glyceryl trimyristate is placed under the tongue three times during the day, on the second,  $\frac{1}{100}$  grain of atropine is given either by mouth or hypodermically three times, and on the third the administration of glyceryl trimyristate is repeated. Each morning the patient is given 2 drachms (8 Gm.) or more of magnesium sulfate in warm water and each evening at bedtime one ounce (30 cc.) of olive oil (preferably) or thick cream. The common duct is gently irrigated once a day through the T tube, catheter or fistula, with warm physiologic solution of sodium chloride, and after as much of this as possible is removed by syringe or by permitting the tube to drain for five minutes from 10 to 30 cc of warm sterile olive oil or hypodermic is instilled into the common duct. If the patient does not complain of distress, the tube should be clamped off during this course of treatment except for a thirty minute period after each instillation. In order to maintain an increased intraductal pressure, three or four tablets of decholin or prochloron are given four times a day.

This treatment may be repeated after a few days rest and, as in the first case reported, it may be repeated as many as ten times over a period of two months. It may prove rather debilitating at times, and care must be taken not to exhaust the patient.

The question arises as to the indications for this form of treatment when no fistula or arrangement with a catheter exists. If obstruction is complete, there may be danger of hastening hepatic destruction by increasing the biliary pressure. In several cases in which obstruction has not been complete, we have ventured to use the treatment, omitting the irrigations, with no evident harmful effects and with definite improvement or complete alleviation of the biliary condition. We have recovered no stones from the stools as yet in such instances, but the patient's search for stones at home is not so exacting. One should always be aware of the potential danger in such treatment, however, and until further investigative studies have been made the dehydrocholic acid products should be cautiously prescribed when there is any degree of jaundice, with supposition of stone in the common duct. If the jaundice is marked, with acholic stools, great damage might be done to the liver, and dehydrocholic acid should definitely not be prescribed. However, in all

cases following cholecystectomy in which jaundice does not exist, we now place the patient on the described three day regimen about two weeks after operation in an effort to flush the biliary system thoroughly and remove small stones, mucous plugs, inspissated bile and organized debris, thus lessening the incidence of postcholecystectomy difficulties. This particular regimen is now being used in the nonsurgical management of routine biliary tract disease, exclusive of jaundice.

527 Medical Arts Building

## ADIPOSIS DOLOROSA (DERCUM'S DISEASE)

TREATMENT OF THE ASTHENIC PHASE WITH  
PROSTIGMINE AND AMINOACETIC ACID

MICHAEL G WOHL, MD

AND

NATHAN PASTOR, MD

PHILADELPHIA

If one is to judge from the number of cases reported in the literature, adiposis dolorosa is a rather rare disease. Approximately 250 cases have been described in the world's literature since the original report of the condition by Dercum in 1888. It would seem that the infrequent occurrence of the disease is more apparent than real. Many cases are unrecognized as such and masquerade as endocrine obesity associated with arthritis or menopausal psychosis. Moreover, there has been a tendency in recent years, particularly on the continent to deny the existence of Dercum's disease as a clinical entity. From a critical review of the literature and our studies of the cases to be described here, we are inclined with Laroché<sup>1</sup> to look on it as a syndrome rather than as a disease per se.

The four cardinal signs of Dercum's syndrome are (1) adiposity, (2) asthenia, (3) pain and (4) psychic disturbances. The asthenia is usually out of proportion to all physical activities. The least amount of effort to which the patient has been accustomed fatigues him readily. Sooner or later the asthenia becomes so pronounced as totally to incapacitate the patient. This symptom overshadowed all other complaints by our patients and taxed our therapeutic resources. The other signs of Dercum's disease will receive due consideration in the discussion of the cases. In this presentation we are reporting three cases in which the asthenia was an outstanding feature. This symptom of the disease was combated successfully by the oral use of aminoacetic acid and prostigmine ammonium bionide. To our knowledge this therapeutic regimen was never before employed in Dercum's disease.

### REPORT OF CASES

CASE 1—Mrs. B. H., aged 60, white, admitted to the Endocrine Clinic of Temple University Hospital March 17, 1936, complained of pains in both legs, extreme weakness and frequent crying spells without any apparent reason. She gave a history of progressive gain in weight, her highest weight having been 230 pounds (104 Kg.) two years previously. The patient is married and has two children, both living and well. She was not a heavy eater and had no excessive desire for

sweets or fluids. The past history was irrelevant except that in 1934 she was treated in another institution for hypopituitarism.

On examination she was found to be very nervous and depressed, her skin was dry and of a rather pasty color. There was a universal distribution of fat with a predominance over the hips, thighs and abdomen. The arms and legs were thin. There were pads of fat around the metatarsal bones of each foot. There were encapsulated masses of fat on the thighs and hips. These masses were painful on pressure. Physical examination of the chest was negative and the lungs were clear, there was no evidence of heart disease. The blood pressure in millimeters of mercury was 120 systolic and 80 diastolic. The abdomen was pendulous, there were several fatty tender nodules in the abdominal wall. The edge of the liver was not palpable. The spleen was not enlarged. The tendon reflexes were exaggerated. The visual fields were normal, the fundi were not clearly visualized, bilateral immature cataracts were found. The only abnormal laboratory finding was a basal metabolic rate of minus 25 per cent with a blood cholesterol of 138 mg. per hundred cubic centimeters. The sugar tolerance curve was within normal range. The blood calcium content was 11 mg. per hundred cubic centimeters, the blood phosphorus 4 mg. Urinalysis on two occasions revealed no chemical or microscopic abnormalities. The specific gravity varied from 1.006 to 1.013. The blood count showed hemoglobin 75 per cent (Dare), red blood cells 4,410,000, white blood cells



Fig. 1 (case 1)—Adiposis dolorosa. Note lumpy encapsulated masses of fat on thighs and abdomen, forming an overhanging apron of fat. The upper half of the body is relatively thin (after weight loss of 10 Kg.).

6,000, color index 0.85 and normal erythrocytes. X-ray examination of the skull showed a normal sella turcica. X-ray examination of the chest showed no persistent thymus.

Treatment consisted of a diet with 70 Gm. of protein, 100 Gm. of carbohydrates and 75 Gm. of fat. Because of the question of hypothyroidism as the cause of her condition, she was placed on desiccated thyroid, 1½ grains (0.1 Gm.) daily. In the course of seven months she lost 22 pounds (10 Kg.). The basal metabolic rate October 29 was minus 10 per cent. Her weakness and nervousness persisted. In view of the fact that the blood picture was still that of hypochromic anemia, she was given iron sulfate 15 grains (1 Gm.) daily. The blood picture improved but the patient still continued to complain of weakness, nervousness and depression. The weakness was so distressing that she was forced to stay in bed until midday each day. The least physical effort fatigued her. The tenderness of the lipomatous nodules persisted and nervousness and irritability increased.

Because of the extreme muscle weakness it was thought that there was also a component of myasthenia gravis. The reaction of the sternocleidomastoid muscle to the tetracaine cur-

From the Department of Medicine, Temple University School of Medicine.

These studies were made possible by the cooperation and aid extended by the various members of the medical staff of Temple University Hospital. 1. Laroché, Guy. Adipose douloureuse et maladie de Dercum. *Ann. de med.* 23: 445-453 (May) 1928.



rent stimulation by Dr G E Farrar Jr was as follows: Faradic stimulation of the sternocleidomastoid muscle, at the rate of about 25 muscle contractions per minute, showed weakening at 50 contractions. After 0.5 cc of 1:2,000 solution of prostigmine intramuscularly, muscle contractions weakened at 450 contractions. The extensor indicis proprius muscle was exhausted at 50 contractions. After 1 cc of prostigmine intramuscularly, the response was as follows: ten minutes, 250 contractions without fatigue; one hour, two hours, three hours, 300 contractions without fatigue. The patient was given 45 mg of prostigmine daily by mouth. For six weeks she did fairly well. She returned to the clinic after she recovered from an infection of the upper respiratory tract which lasted five days. The weakness and nervousness recurred. Prostigmine was continued for ten days. The benefit from it was not as great as when it was first given. The urine was examined for creatine and showed 70 mg in twenty-four hours on her usual mixed diet. Prostigmine was combined with

aminoacetic acid 15 Gm daily. In the following three months there was a distinct improvement. The urine showed 86 mg of creatine in twenty-four hours. She felt considerably stronger, her nervousness decreased and she was able to carry on her routine daily household work. She is well maintained on aminoacetic acid and prostigmine orally. The urine after four months of combined therapy showed 130 mg of creatine.

**CASE 2**—Mrs E Z, aged 49, white, admitted to Temple University Hospital April 21, 1937, complained of generalized body pains; they were worse in the legs and knees. The pains were especially severe over masses of subcutaneous 'knots'. The pains had been of several years' duration and had grown

Fig. 2 (case 2)—Illustrating generalized diffuse form of Dercum's disease.

worse in the last few months. She also suffered from weakness and hot flashes, periods of depression and unexplained crying. She had put on considerable weight in the last few years, having reached her admission weight of 226 pounds (102.5 Kg). Her past history was irrelevant except that she underwent a pelvic operation in 1923. This was followed by a decreased menstrual flow and six years later, vasomotor symptoms developed, namely, hot flashes and sweats. Pains in the legs and the arms and in 'lumpy' areas of the body came on about this time. Extreme weakness had appeared in the last two years so that the patient spent a great deal of time in bed.

The patient was well oriented, easily excitable, nervous and obese. The obesity was universal in distribution but predominated over the abdomen, thighs, buttocks and arms. The face was florid, the mammae were pendulous and the skin of the body was of fine texture, warm and moist and showed prominent dermatographism. There were subcutaneous masses of fat, varying in size from an English walnut to an orange, well distributed over the abdomen, chest and arms; they were tender to pressure. The pubic and axillary hair was scanty.

There were varicosities on both legs as well as fatty nodules smaller than those found on the arms. The nodules were tender to touch. There was also marked tenderness about the knees and especially in the popliteal spaces which were padded with collections of fatty masses. Examination of the heart showed a transverse widening with distant sound. No murmurs were heard and no arrhythmia was found. The aorta was widened, the aortic second sound was accentuated and roughened. The blood pressure was 170 systolic, 110 diastolic, and the pulse rate was 84. The electrocardiogram showed normal sinus rhythm. The lungs were emphysematous. The abdominal viscera could not be palpated because of the pendulous abdomen. Polyneuritis was excluded by Dr S F Gilpin Jr. The examination of the eyes by Dr W J Lill showed slight attenuation of retinal vessels, the visual field were normal.

The various laboratory studies were as follows: hemoglobin 85 per cent (Dare), red blood cells numbered 4,670,000, white blood cells 12,300, polymorphonuclear leukocytes 80 per cent, lymphocytes 15 per cent. There were no abnormal red cells. Urinalysis revealed acidity, specific gravity 1.019, sugar and albumin negative, occult blood negative, microscopic examination negative. Blood chemistry revealed serum calcium 9.9 mg per hundred cubic centimeters of blood, phosphorus 4.4 mg, cholesterol 170 mg, urea 13 mg, sugar 93 mg. The Wassermann reaction of the blood (Kolmer and Kahn modifications) was negative. The basal metabolic rate was plus 9 per cent.

Pachon oscillometric readings revealed normal conditions in both calves and ankles. X-ray examination of the sella turcica showed the pituitary fossa to be slightly larger than average. The lateral film of the skull showed no evidence of increased intracranial pressure.

During her stay at the hospital, the patient complained of severe pains in the shoulders, legs and abdomen. On one occasion, the pains were so severe that a hypodermic administration of morphine had to be resorted to. The question of focal infection with arthritic changes was considered. Clinical and X-ray studies of all the teeth and the joints of the upper and lower extremities were negative. The shafts of the left femur and fibula were normal in appearance. Dr J R Moore excluded any orthopedic condition that would be responsible for her pains. The pains were therefore attributed to her metabolic disorder. She was discharged with the diagnosis of Dercum's syndrome and was referred to the Endocrine Clinic. On her visits to the clinic she still complained of pains and marked weakness. Because of her extreme exhaustion and our experience with prostigmine and aminoacetic acid in case 1, she was tested by Dr Farrar for myasthenic reaction of the muscle. He found a marked improvement in contractions of the left sternocleidomastoid muscle (faradic current stimulation) after intramuscular injection of 1 cc of 1:2,000 solution of prostigmine. The patient was placed on a diet consisting of 70 Gm of protein, 100 Gm of carbohydrate and 70 Gm of fat. She was given 15 mg of prostigmine orally three times a day. For the pains and nervousness analgesics in the form of acetylsalicylic acid and phenobarbital were given with satisfactory results. The weakness, however, persisted although not so pronounced. Aminoacetic acid 7 Gm daily was added. The weakness disappeared in the course of twenty-four days. The vasomotor phenomena were combated by sedatives and intramuscular injections of estradiol benzoate. After four months of treatment, the patient lost 40 pounds (18 Kg) and was able to carry on her usual household duties. Prior to administration of aminoacetic acid the urine contained 0.23 Gm of creatine for twenty-four hours. Five months later it showed a creatine content of 0.27 Gm. After omission of aminoacetic acid for a period of one month, the twenty-four hour urine creatine rose to 0.330 Gm. After this treatment had been resumed for three weeks, the twenty-four hour urine creatine decreased to 0.242 Gm. It is interesting to note that during her treatment and while she was losing weight, three attacks of epigastric discomfort developed with pains in the right

1a. Muscle fatigued at ninety contractions—twenty five minutes. After 1 cc of 1:2,000 solution of prostigmine intramuscularly muscle showed no fatigue after 150 contractions upward.

upper quadrant simulating gallbladder disease. A cholecystogram showed no evidence of an opaque or nonopaque calculus in the gallbladder and a normally functioning gallbladder. Biliary drainage, however, showed many cholesterol crystals in the bile sediment. The upper abdominal pains cleared after several biliary drainages.

**CASE 3**—Mrs. A. T., aged 48, admitted to Temple University Hospital June 17, 1937, complained mainly of weakness of the back and the legs, pain in the right hip and increasing weight. Her previous health had been good until three years before, when she noticed that her strength was decreasing and that she had no "support" in her back. She had great difficulty in sitting up from a recumbent position and had to hold on to something to pull herself up. The pain in the right hip region particularly when lying on this side, she had had for three years. She had typhoid at the age of 15 years and a nervous breakdown nine years before admission. She was married and had had four pregnancies. The first infant died shortly after birth. Her three boys were vigorous at this time.

Her menstruation was regular and of normal flow. She weighed 175 pounds (79.4 Kg.) and was 5 feet (152 cm.) in height. The fat was universally distributed with lipomatous masses about the hips and subtrochanteric areas. These fatty masses were very tender on pressure. There were many tender nodules smaller in size scattered over the thighs and arms suggesting bag of worms feel as described by Dercum. There was weakness of the back and leg muscles particularly of the *psaos iliacus* group. No fibrillary twitchings of the muscles were noted. There was a marked lumbar lordosis. On her attempt to rise from the floor the patient rotated her whole body getting on all fours. The neurologic examination by Dr. S. F. Gilpin Jr. revealed no central or spinal cord involvement. The visual fields and retinas were normal. Examination of the chest showed no evidence of heart disease. The lungs were clear. The blood pressure in millimeters of mercury was 110 systolic and 80 diastolic. The abdomen was negative except for the presence of an apron of fatty tissue containing isolated tender lipomatous nodules. The pelvis was normal. The Wassermann and Kahn reactions of both the blood and the spinal fluid were negative. The colloidal gold curve of spinal fluid was negative. The basal metabolic rate was plus 6 per cent, the blood cholesterol was 165 mg. per hundred cubic centimeters of blood, blood calcium was 12 mg. and blood phosphorus 4.4 mg. The fasting value of the blood sugar was below normal (78 mg.). The sugar tolerance test showed an increased tolerance for carbohydrates. The blood count was: hemoglobin 13 Gm. per hundred cubic centimeters of blood, red blood cells 5,060,000, white blood cells 10,500, polymorphonuclear leukocytes 54 per cent, lymphocytes 33 per cent, monocytes 12 per cent and eosinophils 1 per cent. The red blood cells were normal. Urinalysis reaction pH 7.0, specific gravity 1.010, albumin slight trace, sugar negative. Occult blood was slightly positive. An occasional red blood cell was present and an occasional white blood cell with many bacteria. X-ray examination of the skull showed a normal sella. X-ray examination of the chest revealed no pathologic changes. The faradic stimulation of the left extensor indicis proprius muscle showed no myasthenic reaction. A twenty-four hour specimen of urine contained 0.869 Gm. of creatinine and 0.071 Gm. of creatine.

The patient was placed on a diet of 1,500 calories with aminoacetic acid 10 Gm. and prostigmine 45 mg. daily. After ten days treatment the patient's fatigability decreased and she had a feeling of general well being. After two months her general strength increased to such an extent that she was able to attend to light household duties, however the lumbar muscle group was not beneficially affected. At the present time she is taking 15 Gm. of aminoacetic acid daily, which is apparently her maintenance dose.

This represents a case in which the symptoms of adiposis dolorosa were complicated by symptoms suggesting muscular dystrophy. Aminoacetic acid appeared to be of benefit for the relief of the asthenia.

## COMMENT

The diagnosis of adiposis dolorosa in many instances is a difficult one. It is based on the presence of painful nodular obesity associated with asthenia and psychoneurotic manifestations. In cases 1 and 2 the clinical picture was fairly definite. In case 3, in addition to the adiposis dolorosa syndrome, the element of progressive muscular dystrophy is strongly to be entertained. That the nodules are not those of von Recklinghausen's disease is indicated by the fact that, in the latter, they are smaller and firmer and they follow along the course of nerve trunks. A biopsy of fatty nodules in cases 2 and 3 showed them to consist of fatty tissue. Myxedema is not to be considered, since in cases 2 and 3 the basal metabolic readings were above normal and the blood cholesterol estimation gave low figures. In case 1 the basal metabolic rate was minus 25 per cent, however the blood cholesterol was 138 mg. per hundred



Fig. 3 (case 3)—Patient presenting nodular type of Dercum's disease.

cubic centimeters, then again she presented painful fatty nodules and she failed to improve when placed on sufficiently large doses of desiccated thyroid, which raised the basal metabolic rate to practically a normal level. Adiposis dolorosa has frequently been associated with a hypopituitary state, as in case 1. The low basal metabolic rate is to be looked on as conditioned by the latter endocrinopathy.

The peculiar reaction of the sternocleidomastoid and the extensor indicis proprius muscles to the faradic current stimulation raises an interesting question of the coexistence of an abnormal muscle metabolism not unlike that seen in myasthenia gravis. This view finds support in the fact that after intramuscular use of prostigmine muscle contractions could be elicited for a longer period before weakening than prior to the administration of prostigmine. The response of the muscles to the injection of prostigmine has been striking. This immediate improvement following a single injection of prostigmine is characteristic of myasthenia

<sup>2</sup> Dercum, F. A., cited by Wohl, M. G. and Pastor, Nathan. *Adiposis Dolorosa*. Encyclopedia of Medicine. Philadelphia: F. A. Davis & Co., 1936.

gravis, according to Harvey and Whitehill.<sup>3</sup> It was shown by Folin<sup>4</sup> and later by Klercker<sup>5</sup> that the normal adult excretes no creatine or only a very small amount, especially in the case of the female. In certain myopathies, however, creatine in the urine is materially increased.<sup>6</sup> Tripoli<sup>7</sup> and Remen<sup>8</sup> observed creatinuria in myasthenia gravis. Edgeworth<sup>9</sup> states that a creatinuria and a lowered excretion of creatinine are found in this disease. In this connection the high creatine values in our cases are significant. Aminoacetic acid is known to play an important role in creatine metabolism. According to Boothby<sup>10</sup> it is of definite benefit in myasthenia gravis. The marked

*Results of Laboratory Observation in Cases of  
Adipos Dolorosa*

Patient	Sex	Age	Basal Meta- bolic Rate	Chemistry of Blood in Milligrams per 100 Cc				Crea- tine 24 Hr	Myasthenic Reaction
				Choles- terol	Cal- cium	Phos- phorus	Sugar		
B. H.	♀	60	-25%	138	11	4.0	80	70 mg	Positive
F. Z.	♀	9	+ 9%	170	9.9	4.6	90	230 mg	Positive
A. T.	♀	46	+ 6%	161	12	4.4	78	71 mg	Negative

asthenia in cases 1 and 2 was considered to bear some relationship to a disturbance of muscle metabolism analogous to that seen in myasthenia gravis. This new view suggested the use of prostigmine and aminoacetic acid. Prostigmine alone had less beneficial effect in overcoming the asthenia than when it was combined with aminoacetic acid. During the studies on adipos dolorosa we observed that aminoacetic acid was of decided benefit in four patients with obesity in whom a reduction in caloric intake produced extreme weakness. The inclusion of aminoacetic acid in their food enabled the patients to continue with a subcaloric diet and to lose weight satisfactorily. Investigation of this problem is in progress.<sup>11</sup>

#### SUMMARY

In three patients presenting the syndrome of adipos dolorosa, asthenia was a prominent feature. Two cases presented signs of myasthenia gravis (myasthenic reaction and creatinuria). In these two cases the administration of aminoacetic acid and prostigmine resulted in marked improvement. The third case showed symptoms suggestive of associated muscular dystrophy. Aminoacetic acid improved her general condition, however, the muscles of the back (muscular dystrophy) responded less favorably.

1277 Pine Street

- 3 Harvey A. M. and Whitehill M. R. Prostigmine as an Aid in Diagnosis of Myasthenia Gravis. *J. A. M. A.* 108: 1329 (April 17) 1937.
- 4 Folin Otto. A Theory of Protein Metabolism. *Am. J. Physiol.* 13: 117, 1905.
- 5 Klercker K. O. Beitrag zur Kenntnis des Kreatins und Kreatinins am Stoffwechsel des Menschen. *Biochem. Ztschr.* 3: 45, 1907.
- 6 Brand Erwin. Congenital Anomalies of Metabolism with Special Reference to Cystinuria and Myopathies. *Bull. New York Acad. Med.* 10: 298 (May) 1934.
- 7 Tripoli C. J. McCord W. M. and Beard H. H. Muscular Dystrophy. *Muscular Atrophy, Myasthenia Gravis and Strabismus.* *J. A. M. A.* 103: 1595 (Nov. 24) 1934.
- 8 Remen L. Zur Pathogenese und Therapie der Myasthenia Gravis pseudoparalytica. *Deutsche Ztschr. f. Nervenh.* 128: 66, 1932.
- 9 Edgeworth Harriet. in Discussion on Muscular Dystrophy. *J. A. M. A.* 102: 267 (Jan. 27) 1934.
- 10 Boothby W. M. Myasthenia Gravis. *J. A. M. A.* 102: 239, 261 (Jan. 27) 1934.
- 11 Wohl M. G. and Ettelson I. N. to be published.

**Patient as a Whole**—The introduction of a more psychological approach to a medical case has emphasized the necessity of considering the patient as a whole in relation to his environment.—Langdon-Brown Walter. *The Dead Hand in Medical Science.* *Lancet* 1: 281 (Jan. 29) 1938.

## DRAINAGE OF CEREBROSPINAL FLUID

IN TREATMENT OF HYDROCEPHALUS, SYRINGOMYELIA AND SYRINGOBULBIA

N. D. ROYLE, M.D., CHM., FRACS  
SIDNEY, AUSTRALIA

The physiologic result of cutting the sympathetic nerves is to dilate the arterioles and venules. It necessarily increases the rate of capillary flow and thereby relieves edema.

It has been shown by Forbes and Wolff<sup>1</sup> that the cerebral blood vessels are under the control of the sympathetic nervous system, and I have shown that the brain on the side on which the stellate ganglion has been removed is pink in contrast to the bluish color of the contralateral side, that the anastomosing vessels appear less numerous and that the brain gradually shrinks away from the parietes on the ipsilateral side. These phenomena are displayed when the brain has been exposed.

The shrinkage of the brain on the ipsilateral side suggested to me that the operation of superior thoracic ganglionectomy might be used in the treatment of hydrocephalus. I treated two patients in this manner. The following is a short account of each case.

**CASE 1**—A boy, aged 14 years, had a normal birth. Three weeks after birth he had convulsions and was subject to fits for ten years. There had been no fits for four years prior



Fig. 1 (case 2)—Patient two years before operation showing symmetrical head.

to his coming under observation. The fits used to last from four to five hours. Enlargement of the head was first noticed one month after the first convulsion and it continued to enlarge until the time of operation when it measured 61 cm in circumference. The patient had never walked, he had contractures of the hamstrings and plantar flexing muscles of each lower limb. On account of paresis of the quadriceps the knee jerks were unobtainable but there was an ankle jerk increased in excitability and slower than normal in relaxation. The patient was mentally defective though not to a severe degree. He had never been educated.

The operation of superior thoracic ganglionectomy was performed on each side in May 1931. Since the operative treatment his head has ceased to enlarge and on June 29, 1932, measured 61 cm in minimum circumference. There has been some improvement in intelligence. After this date I lost sight of the patient.

**CASE 2**—A youth, 18, had a normal birth. His head was so enlarged at 3 months of age that his bonnets had to be made to measure. When first seen in June 1926 he had

- 1 Forbes H. S. Cerebral Circulation. Observation and Measurement of Pial Vessels. *Arch. Neurol. & Psychiat.* 19: 751 (May) 1914.
- 2 H. S. and Wolff H. G. Cerebral Circulation. *Neurol. & Psychiat.* 19: 1057 (June) 1928.
- 3 Royle N. D. Alteration in Circulation of the Brain by Means in Diseases of the Central Nervous System. *Brit. M. J.* 1: 1 (June 11) 1932.

spastic paraplegia, for which condition I performed a lumbar sympathetic ramisection on each side. This enabled the patient to gain his balance and improve his walking. He was able to run after the operation, whereas he was not able to do this prior to the operation. When examined in April 1932, the knee jerks still exhibited phasic response of considerable range and were retarded in relaxation and the oscillations were absent. The right side showed these phenomena more defi-



Fig 2 (case 2)—Flattening of head on left side eighteen months after operation. Note paler color of left ear.

nitely than the left. The Babinski reaction was positive on both sides. The patient walked well but dragged his right foot. His head measured 67.7 cm in circumference and according to his parents was increasing in size. He was slightly mentally defective and had the intelligence of a boy of 14. His memory was defective; he could not remember recent events. The patient had had constipation before the first operation but this had been relieved. Before the present operation he had frequency of micturition during excitement as when watching a football match and also in cold weather.

Changes in Measurement of Head

	Anteroposterior Diameter Cm	Lateral Diameter Cm	Circumference Cm
May 2 1932	22.75	18.75	67.6
June 13	22.4	18.6	66.8
October 22	22.5	18.3	66.8
March 29 1933	22.5	18.5	66.7
July 15 1934	22.6	18.6	67
Sept 9 1936	22.4	18.8	67.3

The operation of the left superior thoracic ganglionectomy was performed on the patient April 30 1932. The frequency of micturition became normal. His head began to shrink immediately so that in six months it measured 67 cm. Measurements taken with calipers and steel tape showed the changes in size given in the accompanying table.

This is, I believe, the first instance in which an operation for hydrocephalus has been followed by definite decrease in size of the head. This result is probably due to the relief of edema of the soft tissues of the scalp (figs 2 and 3).

The application of sympathetic surgery to syringomyelia was not intentional.

CASE 3—A girl aged 17 years suffered from aching feet, clawed hands and vasomotor changes in both upper and lower

limbs, which were usually purple. In winter she suffered from chilblains. The pupils were small but not pinpoint. Her knee jerks were exaggerated in phasic response and there was a prolonged postural response. She had a wrist jerk of similar type. She had loss of balance in both lower limbs and had a spastic gait. There were sensory changes in both upper and lower limbs, particularly with regard to perception of heat and cold. Her condition was diagnosed by Dr A W Holmes, a Court, honorary physician at Sydney Hospital, as syringomyelia. Lumbar sympathetic ramisection on the right side was performed April 29, 1930, on account of loss of balance and spasticity in the lower limbs and gave surprising results. Not only did the spastic gait cease to affect the patient in both lower limbs but the clawing of the hands gradually diminished and the purple color of the limbs disappeared also. When examined two years later her condition was normal excepting that perception of heat and cold was still inaccurate but improved.

I did not appreciate this result until I saw a patient suffering from syringobulbia. I then realized that drainage of the cerebrospinal fluid had been effected.

CASE 4—Three years ago the patient was thrown from a horse and fell on the right side of his neck. Headache developed six weeks later and continued up to the time of operation. The pain was referred to the front of the right ear and radiated down the shoulder in the region supplied by the cervical plexus. The right hand and arm had been numb and clumsy for three years. The right arm also felt heavy, and he had noticed twitching in it for some time. He had also noticed that the fingers of the right hand appeared shorter than those of the left hand. On looking to the right he had double vision.

On examination the patient had ptosis of the right eyelid and nystagmus of both eyes to the left. The pupils were small but reacted to light and in accommodation. He had paralysis of the right half of the soft palate. He had loss of power in the right arm and shoulder. He had loss of sensation in the right half of the face and loss of heat and cold sensibility and pain in the area supplied by the



Fig 3 (case 2)—Back view showing flattening of head on left side. Note paler color of left ear.

cervical plexus. The knee jerk gave an active phasic response with absence of oscillations on the right side and normal oscillations on the left side. The patient fell to the left when walking and could not balance on his right lower limb. His tongue was paralyzed on the right side (fig 4A) and there were fine fibrillary twitchings on this side. When protruded it turned to the right.

Dr J D Herlihy, honorary physician at Lewisham Hospital, diagnosed his condition as syringobulbia.

The operation of superior thoracic ganglionectomy was carried out March 20, 1936, with the following results

Within a few days the pain on the right side of the face became very much less. Nystagmus gradually disappeared and is now almost gone. The tongue was gradually restored



Fig 4 (case 4)—A paralysis of right half of tongue before operation  
B recovery of right half of tongue six months after operation

to normal condition. It can now be protruded normally (fig 4B), and the fibrillary twitchings are less evident. The soft palate has recovered. He has lost the staggering gate and stands well on either lower limb. He can now see farther to the right than he could before the operation.

#### COMMENTS ON THESE CASES

The operation of superior thoracic ganglionectomy causes an increase in the rate of capillary flow in the

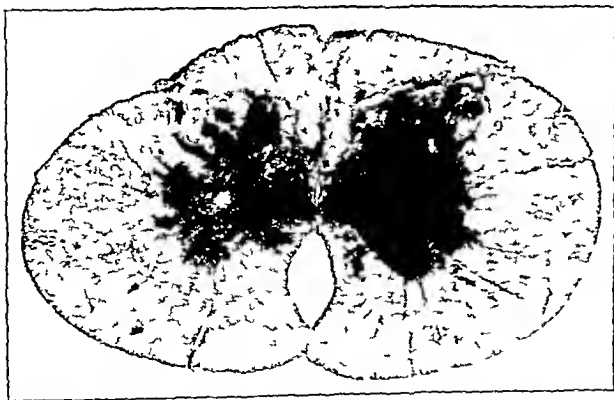


Fig 5—Greater drainage on the ipsilateral side after a left lumbar sympathectomy. The animal was electrocuted after being lightly anesthetized. Specimen obtained six weeks after operation.

cervical region of the spinal cord and of the brain. The operation of lumbar sympathectomy increases the rate of drainage on the ipsilateral side of the cord in the lumbar region as shown in figure 5. Both operations provide an outlet for the cerebrospinal fluid where they tap the spinal circulation. It is just as if a drain were placed in either position. In contrast to the other methods of draining the cord, this method has the virtue of permanence.

There has been a boggy raised recently in the shape of the effect of epinephrine on sympathetically denervated structures. It is said that the denervated structures are more sensitive to epinephrine. If this is so, why does Horner's syndrome persist in patients who underwent operation eight or ten years ago, or why have the effects described in this paper persisted in one case for seven years and in another for five years?

In my opinion, epinephrine has no more effect or not as much effect on denervated sympathetic structures as it has on normal structures, and this is shown by operative results in hundreds of patients.

In my experiments on the effect of epinephrine and ephedrine on muscle tone, the sympathectomized limb was the only one that did not show an increased tone under the influence of large doses of epinephrine. This shows that epinephrine did not affect the spinal blood vessels.

#### CONCLUSIONS

1 Superior thoracic ganglionectomy is effective in causing increased drainage of cerebrospinal fluid in chronic hydrocephalus and syringobulbia.

2 Lumbar sympathectomy is an effective treatment for syringomyelia.

3 Epinephrine has little effect after sympathetic denervation.

185 Macquarie Street

### Clinical Notes, Suggestions and New Instruments

#### UNUSUAL FRACTURE DISLOCATIONS OF CERVICAL SPINE

HERMAN B. PHILIPS, M.D., NEW YORK

This case history shows how severe an injury to the upper part of the cervical spine may be without any permanent disability. Several very unusual features in this case make it worthy of presentation.

During May 1936, while working as a stevedore the patient was struck on the back of the neck by a falling log weighing 700 pounds and knocked from the dock on which he was working to an adjacent lighter. He lost consciousness for several hours and was taken to a hospital, where he remained in bed for about a month and then was permitted up and about until he was discharged from the hospital about a week later. He sustained lacerations of the scalp and an injury to the upper part of the neck and stated that x-ray examination showed a fracture of one of the vertebrae. According to his story there was no vomiting or double vision at any time. One lumbar puncture was performed, but the results were unknown to him. For a day or two after the injury the patient cleared blood from his nose but did not bleed from his ears. He complained of deafness in the right ear about a month after the injury. About the middle of June and early in July he experienced a sudden transient complete loss of vision in the right eye. The pain in the back of his neck and head showed gradual improvement. The pain was increased by turning the head to the left and also increased by lying on one side for a prolonged period. The rest of the history is irrelevant as far as this injury is concerned.

#### EXAMINATION

The physical examination, except for the neurologic examination, was irrelevant. The neurologic examination, by a competent neurologist, showed the following:

**Cranial Nerves**—1 The sense of smell was normal.  
2 The fundi and visual fields were normal. Acuity was tested.

3 Royle, N. D. The Increase in Muscle Tone Following Section of the Sympathetic Nervous System. *Am. J. Antra.* 1, 40 (1929).



3, 4 and 6 Both pupils were slightly irregular but reacted normally. The eye movements were normal.

5 Corneal and nostril reflexes were equal and active. The motor component was normal. The patient claimed decreased sensibility in the right cheek and temple, but the responses to touch and pain stimuli were inconsistent and the normal corneal and nostril reflexes were incompatible with an organic sensory loss.

7 There was no facial weakness.

8 Sound was lateralized to the right and there was impaired bone and ear conduction in the right ear. Semicircular canal function could not be tested by rapid head movement because of the stiffness of the neck muscles.

9 to 12 The palate and tongue movements were normal.

*Other Tests*—Examination of the motor system showed no swaying on the Romberg test. There was no tremor, weakness or ataxia. The sensory system was normal. The tendon and superficial reflexes were normal and equal on the two sides. The mental status was normal.

*The Head*—There are recently healed scars of scalp lacerations. One about 2½ inches long is in the right upper mid-parietal region and is nonadherent and nontender. The other scar about 2 inches long, is to the left of the midline just about the bregma and there is a slight depression along the line of the scar which is cleanly healed and nontender. There is no other skull abnormality. The patient holds his head rather stiff most of the time, and the right lateral and posterior cervical muscles are tense and tender to pressure.

Opinion based on the history and physical manifestations is that there are (1) lacerations of the scalp, injury to the neck and a moderately severe cerebral concussion (2) no signs of intracranial or spinal cord injury at the present time and no postconcussional symptoms, and (3) pain in the area supplied by the second and third cervical nerves on both sides due to injury affecting the muscles and ligaments of the neck and would be a normal consequence of any accompanying fracture.

#### ROENTGEN EXAMINATION

There are multiple fractures of the atlas and axis with dislocations of the articulations between the atlas and the skull and the atlas and the axis.

The posterior arch of the atlas has sustained two complete transverse fractures which are not united. They are clearly seen in the lateral and vertex occipital roentgenograms (figs 2 B and 1 4). On the right side the fragments are separated by about one fourth inch and on the left side by about one-eighth



Fig 1—A vertex occipital view showing posterior portions of neural arches of upper cervical segments projected through the foramen magnum. Asymmetry and deformity are apparent. B submento occipital view showing anterior portions of neural arches of upper cervical segments with fractures and deformities. Roentgenogram retouched.

inch. The fracture on the right side is comminuted with a small intermediate fragment. The extreme posterior portion of the posterior arch, which is about 2 inches in length is displaced posteriorly and to the left side. There are no evidences whatever of any attempt at bony union, this posterior portion of the arch being unattached by bone structures to any of the adjoining portions of the spine.

There are multiple fractures of the anterior arch of the atlas. At least two complete fractures are present, one on the right

side and one on the left side of the tubercle. These fractures are united with considerable deformity and irregularities in contour of the bone. Spur formations are produced on the anterior margins of the arch and the tubercle is displaced to the left of the midline by one-fourth inch and to the left of the midplane of the odontoid process by one-half inch (fig 1 B). All of them should be in the same plane. The entire atlas is spread out peripherally, the anterior arch being displaced anteriorly, the lateral portions of the atlas which include articular and transverse processes are displaced laterally, and the posterior arch is displaced dorsally and to the left.

The space between the anterior surface of the body of the axis and the posterior surface of the anterior arch of the atlas is twice the normal width (fig 1 B). This is due to the spread

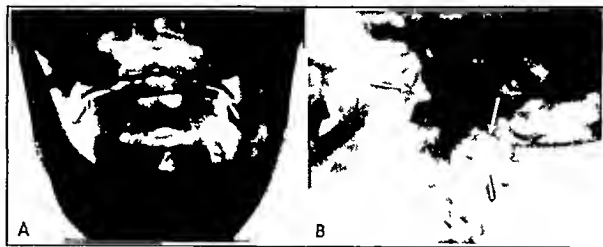


Fig 2—A anteroposterior view of upper cervical spine through open mouth. Shows asymmetry of atlanto-axial articulations. B lateral view of upper cervical segments showing fractures of posterior portions of neural arch of atlas and of styloid process of temporal bone.

of the anterior portion of the arch of the atlas as well as to anterior displacement of the atlas with respect to the axis. This anterior displacement is asymmetrical, owing to rotation anteriorly to the left side of the atlas.

There is a longitudinal fracture of the anterolateral portion of the body of the axis adjoining the base of the odontoid process on the right side. The fracture is seen in all of the mento occipital exposures (fig 1 B). The fracture appears united, but there is an associated irregularity in contour of the base of the odontoid process, as a result of the fracture. There is also some irregular density extending completely across the body apparently along the united fracture line. As a result of this fracture the odontoid process is angulated slightly to the right side at an angle of approximately 10 degrees.

The separation of the fragments of the atlas has resulted in partial dislocations of the articulations between the skull the axis and the atlas. Both the lower articular surfaces of the atlas are displaced outward one-fourth inch with respect to the corresponding articulations of the axis and the skull (fig 2 A). The anterior rotational displacement of the left lateral portion of the atlas contributes to an additional dislocation so that the articular surface on the left side between the atlas and the axis is almost completely obliterated in the anteroposterior roentgenogram. The occipital condyle (the articular process of the base of the skull) is clearly defined on the right side, as is also the articulation between it and the articular process of the atlas but on the left side there is a definite overlapping of shadows showing a subluxation of this articulation. Apparently in addition to there being a bilateral outward displacement of the articular process of the atlas there is also an anterior displacement on the left side which produces an additional subluxation with respect to the atlas below and the occipital condyle skull above (fig 2 A).

There is, in addition, an incompletely united fracture of the styloid process of the left temporal bone (fig 2 B).

#### COMMENT

The injuries sustained in this case are usually associated with compression or lacerations of the spinal cord or hemorrhage into or near the brain stem or base of the brain and are usually fatal but in this instance in spite of an unusually severe combination of fractures and subluxations there was a coincidental decompression by peripheral displacement of fragments and their subsequent nonunion which contributed in no small degree to the patient's recovery.

The peripheral displacement of the fragments of the atlas and their nonunion subsequently were as effective as an actual

decompression operation, and this undoubtedly saved the patient's life. The case illustrates, notwithstanding prevalent notions to the contrary, that extensive severe injuries in close proximity to vital structures are compatible with fairly complete recovery and reasonably good health. The case also indicates the necessity for thorough roentgenographic study. More than forty roentgenograms were made during several examinations over several weeks, until completely satisfactory exposures were secured. When first seen soon after a severe injury, thorough examinations should not be undertaken, for positioning the patient for demonstrating fractures and dislocations of the uppermost segments of the spine, such as in this case would undoubtedly jeopardize the life of the patient. As the patient recovers and a safe period is reached, more thorough roentgenographic studies can be made with impunity.

9 West Sixty-Eighth Street

#### POSTMORTEM VERIFICATION OF ANTERIOR POLIO MYELITIS IN A MAN OF ADVANCED YEARS

MAX J. FOX, M.D. MILWAUKEE

Assistant Superintendent City of Milwaukee Isolation Hospital

During the months of July, August, September and October 1937 the city of Milwaukee had a mild epidemic of poliomyelitis. During this time 110 patients were interned at the city isolation hospital for medical services.

Among these patients was one in particular whose case seemed worthy of adding to the medical literature because of the advanced age of the patient.

Correspondence with superintendents of contagious disease hospitals in the United States failed to bring to light any patient with poliomyelitis approaching the age of this one. Dr. Josephine B. Neal states that in 1914 she had a patient aged 55, in 1916 a patient aged 58 and in 1921 a patient aged 50. Lavinder, Freeman and Frost<sup>1</sup> found seven patients between the ages of 45 and 64 in the epidemic of 1916 in New York City. Forsbeck and Luther<sup>2</sup> reported on the mass epidemic of 1908 to 1929 in which there were four instances between the ages of 55 and 59. My patient seems to be the oldest on record to date as having died of poliomyelitis.

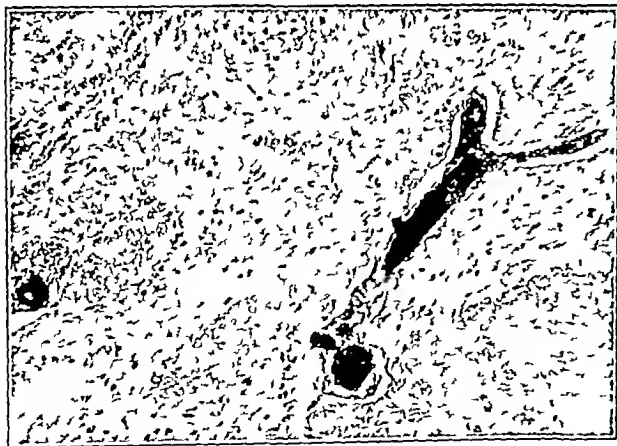


Fig. 1—Section from the dilated blood vessels of the pons filled with stagnant blood. Around the vessels there is a collar of lymphocytic infiltration. Somewhat distant from the vessels there is some perivascular edema.

#### REPORT OF CASE

E. H., a man, aged 68, a painter, entered the hospital with almost total paralysis of both legs. Four days prior to this an infection of the upper respiratory tract, a cough and general malaise had developed. Two days later he began having pain

in the lower part of the back and the thighs. This was followed by a gradually increasing weakness in the lower extremities and by evening he was unable to walk. The next morning he was able to move only his toes. The following day he was brought to the hospital.

The patient's family and past personal history were normal except for an injury to the lower part of the back sixteen



Fig. 2—Microscopic study under low power of section from cervical cord showing a blood vessel which is filled with erythrocytes. There is also perivascular lymphocytic infiltration. The tissue outside the vessel appears edematous and contains lymphocytes scattered throughout.

thirty-three years before and a back strain received while he was lifting a heavy object about one week before his entrance to the hospital.

On physical examination at the time of entrance to the hospital the patient, a slender man, was partially paralyzed but apparently not acutely ill. Physical and neurologic examinations of the head were negative except for a coryza and a mild pharyngitis. There was no rigidity of the neck or adenopathy. Examination of the chest was negative except for a few scattered fine rales in the bases of both lungs. The heart was normal with a blood pressure of 130 systolic and 80 diastolic. Examination of the upper extremities revealed a slight tremor and a slight amount of muscular incoordination. The reflexes of both biceps and triceps were slightly exaggerated. No muscular weakness was evident. The Kernig and Brudzinski signs were both absent. Both lower extremities were flaccid except for weak flexion and extension of the toes, weak dorsiflexion of the left foot and weak adduction of the right thigh. There was a slight amount of tenderness over the calf muscles on pressure, but no other sensory disturbance was present. The patellar and Achilles reflexes were absent. There was no ankle clonus, and Babinski's sign was absent. There was an absence of the abdominal and cremaster reflexes.

A lumbar puncture was done and 5 cc. of clear fluid was drawn under normal pressure. The Queckenstedt test was positive. The spinal fluid cell count was 205 cells per cubic millimeter, predominantly lymphocytes. Urinalysis was negative. The blood count was essentially normal except for a moderate leukocytosis of 8250 white blood cells per cubic millimeter with a differential count of 64 per cent polymorphonuclears, 25 per cent lymphocytes and 11 per cent monocytes.

A diagnosis of poliomyelitis was made.

On the following morning another lumbar puncture was done and three-eighths gram (0.024 Gm.) of ephedrine sulfate and 2 cc. of physiologic solution of sodium chloride was injected intrathecally. Examination of the spinal fluid showed an increase in globulin chlorides were 718 mg. per hundred centimeters, the Ross-Jones and Noguchi tests were negative as were the Wassermann and Kahn tests. The colloidal gold curve was 0000000000. A cell count of the spinal fluid at this time was 106 cells per cubic millimeter (100 per cent lymphocytes).

<sup>1</sup> Lavinder, C. H., Freeman, A. W. and Frost, W. H. Poliomyelitis. Report of the International Committee. Baltimore: Williams & Wilkin, 1932, p. 388.

<sup>2</sup> Forsbeck and Luther. Poliomyelitis. Report of the International Committee. Baltimore: Williams & Wilkin, 1916, p. 411.

During the next twenty-four hours, except for considerable coughing and the presence of large moist rales over the bronchi, the patient's condition was unchanged. There was no increase in the amount of paralysis. A beginning pneumonia was suspected at this time.

On the following morning the patient became quite cyanotic, respirations were rapid and labored, and the pulse was rapid but of good quality. The temperature rose to 103.2 F. There was percussion dullness over both lung bases. Diminution of breath sounds and many moist rales were present confirming the diagnosis of pneumonia. Respiratory stimulants and nasal oxygen were given, to which the patient responded weakly. The next morning, ten days after the onset of his illness, the patient failed suddenly and was found dead. An autopsy was performed by Drs. J. C. Grill and L. J. Van Hecke of the pathologic department of Marquette University.

#### SUMMARY OF MACROSCOPIC AND MICROSCOPIC EXAMINATIONS

The body was of a well developed and well nourished man.

The pupils were unequal, the left measuring 3.5 mm and the right 5 mm in diameter.

There was moderate abdominal distention.

The lungs were voluminous. The pleural cavities were normal. In both the right and the left lung were scattered foci of aspiration, apparently bronchopneumonia with small areas of necrosis in the lower portion of the left upper lobe. The bronchi contained a thick, purulent material. The mucous membranes were thickened and injected.

The heart showed no macroscopic changes. The arch and descending aorta presented a moderate atheromatosis.

The liver had a moderate cloudy swelling with a loss of normal markings.

The spleen was slightly enlarged with a soft grayish red parenchyma.

The kidneys were moderately swollen. The urinary bladder was considerably distended with a clear yellow urine. The prostate was enlarged and had small adenomas in the lateral lobes.

Aside from distention, the gastro intestinal tract was without marked change.



Fig 3.—Low power section from the lumbar cord. In the periphery of the section one notices an infiltration of the leptomeninges with lymphocytes and a few polymorphonuclear leukocytes. The remaining section presents a similar microscopic picture as in figure 2, viz. stagnant blood in the vessels, perivascular infiltration, lymphocytic infiltration of the remaining tissue with some proliferation of microglia.

There was hypertrophic lipping of the edges of the vertebral bodies of the spine which was most marked in the lumbar region.

The skull showed no pathologic change. The leptomeninges of the brain were congested. The cortex of the brain was of a violet color giving a sharp contrast to the white matter. Otherwise there were no obvious macroscopic changes. The spinal cord revealed congestion of the leptomeninges but nothing further was obvious.

On microscopic examination all sections revealed an increased number of leukocytes within the blood vessels.

Microscopically the heart was normal.

The lungs had a purulent bronchitis and bronchopneumonia with marked necrosis in some portions.

The liver had a finely granular liver cell cytoplasm. There were no nuclear changes and while the sinusoids contained



Fig 4.—Section of lumbar cord under high power. There is marked degeneration of the ganglion cells. The surrounding tissue presents a lymphocytic infiltration and proliferation of microglia. The blood vessels are filled with stagnant blood and present perivascular infiltration and edema.

numerous leukocytes there was only a moderate swelling of the tubular epithelium and a very occasional lymphocytic infiltrated scar. The glomeruli were normal.

The prostate evidenced a fibromuscular hypertrophy.

The spleen suggested the appearance of a reticulum hyperplasia and some of the monocytes had phagocytosed red blood cells. The malpighian bodies were moderately hyperplastic.

The adrenal gland and pituitary gland showed no obvious changes.

Microscopic sections of the central nervous system demonstrated many changes. All sections of the cord revealed degeneration of the anterior horn. In some of these degenerated areas were extravascular red blood cells, especially in the most degenerated portions. This degeneration was either on both sides or on one side. The degeneration was evidenced by various alterations of the nerve cells which ranged from simple swelling with slight eccentricity of the nucleus to complete loss of pigment nucleus and nucleolus. The principle cell of exudate appeared to be a mononuclear cell with a nucleus of horseshoe shape, the cytoplasm of which for the most part was foamy. There was a scattering of polymorphonuclear leukocytes and a few small round cells. The small round cells, however, were in superabundance in the perivascular spaces not only in the anterior regions but in all other portions of the cord as well and even in some parts of the leptomeninges. In one section of the thoracic cord degeneration seemed to have extended out into the lateral fasciculus, and elsewhere it remained practically confined to the region of the anterior horn. There were no obvious changes in the cells of the column of Clarke. On section of the posterior sensory ganglion an apparently normal structure was found; however, one or two cells in each section had undergone obvious degenerative changes. In these sections, however, there was no perivascular round cell infiltration.

In sections higher up on the cord there was a continuation of the same process, and in the medulla at the olivary nucleus there was definite perivascular round cell infiltration but relatively little obvious degenerative change. Sections from the lower pons had a similar appearance with very early nerve cell infiltration but no obvious nerve cell degeneration. The ventricular ependyma and the basal nuclei showed no obvious alterations. There were no alterations either of structure or of the blood vessels in the cerebral cortex and cerebellum. The leptomeninges in the sections of cord had somewhat

increased numbers of small round cells in the arachnoid spaces and a slight perivascular round cell infiltration. There were lymphocytes in the leptomeninges of the brain but no typical collars around the blood vessels.

The microscopic diagnosis was (1) acute anterior poliomyelitis (2) purulent bronchitis (3) aspiration pneumonia with beginning gangrene of the lung, (4) parenchymatous degeneration of the liver and kidney (5) mononuclear erythrophagocytosis of the spleen and (6) lymphocytic infiltration of the leptomeninges.

## COMMENT

In this case the clinical picture, the laboratory studies and the postmortem examination conform to the pathologic changes expected in anterior poliomyelitis. There was nothing revealed to evidence any other clinical entity.

## CONCLUSION

This disease should be known as anterior poliomyelitis.

It occurs with greatest frequency in the young occasionally in older persons. The present patient appears to be the oldest person on record as having died of this disease.

## BACILLUS VIOACEUS INFECTION IN A HUMAN BEING

M. E. BLACK, M.D. AND JOHN SHAHAN, M.D. CLEARWATER, FLA.

*Bacillus violaceus* is ordinarily considered nonpathogenic. Woolley<sup>1</sup> however, described several fatal cases in animals due to a strain of this chromogen but so far as we have been able to ascertain no cases of infection of human beings with this organism have been described. We therefore present the following case.

## REPORT OF CASE

**History.**—S. P., a white boy, aged 6 years, admitted to the Morton T. Plant Hospital on the afternoon of Aug. 17, 1937, had been ill for three days. He had been a normal child in all physical respects and had had but one illness before this time. Some months previously he had suffered from an acute inguinal adenitis which caused elevation of temperature and



Fig. 1—Appearance of left arm Aug. 30, 1937.

chills for a few days and then subsided. This was thought to be due to an infection of the lower extremity of the affected side.

Two or three days prior to the onset of the present illness he, with a number of children, had been wading in a pool of rain water which had collected in a low spot of ground. At the onset of illness he had an elevation of temperature and complained of pain in the right inguinal region. There was some tendency to nausea and vomiting, but there were no other subjective symptoms of note.

**Examination.**—The patient was well nourished and appeared to be seriously ill, he was irrational. A profuse perspiration was present, despite a temperature of 101 F. Inspection revealed from eight to ten skin lesions appearing on the flexor surface of the left arm just above the elbow, on the lateral surface of the right elbow and on the right side of the trunk; the latter ones were distributed over the ventral and dorsal surfaces. There were also several of the lesions low down on the right anterior abdominal wall. The glands in the right inguinal region were quite swollen and tender. The left arm exhibited a marked cellulitis and lymphangitis with tender and swollen glands in the left axilla. It appeared that these were



Fig. 2—Appearance of right arm Aug. 30, 1937.

suppurate in a short time. The appearance of the cutaneous lesions was distinctive and at first looked like those of anthrax. However, a difference was to be noted. These varied in size from one-half by 1 inch to one or two that were twice that size. In each there was a dark mahogany red center, slightly depressed and dry. Each of these was surrounded by a pustular area, which showed a distinct violet color in the surface of the pustular ring. The pus was semithick and yellowish white. It was nonodorous and not very profuse.

Except for these cutaneous lesions, the physical examination gave negative results.

Smears from the lesions showed a slender gram-negative bacillus about the size of *B. typhosus*, arranged singly in pairs and in groups, and repeated agar cultures of material taken from each of the lesions produced discrete deep violet colonies, the color remaining on or very near the surface and not diffused throughout the medium. The pigment was slightly soluble in water and quite soluble in alcohol. The growth emulsified with difficulty. Microscopically, from cultures, the organism showed vacuoles resembling spores but these clear areas did not take the spore stains. The organism was killed completely at boiling temperatures. No gas was produced in the ordinary sugar mediums, and only in glucose was there acid formation. On blood agar plates clear hemolytic zones surrounded the colonies. On the tenth day of the disease the patient's serum agglutinated the organism completely in a titer of 1:640 in thirty minutes and in a titer of 1:1280 in two hours, with no agglutination in the negative control. Cultures taken on blood, stool and urine were negative. Results of agglutination tests for Malta fever, typhus and typhoid were negative as was also that of the Kahn test. There were no molds, yeasts or any other organisms found in the lesions at any time.

Subcutaneous injection of 0.1 cc. of a bouillon subculture of the organism into a rabbit produced in twenty-four hours a temperature of 103.6 F. and at the site of inoculation a dark red edematous lesion about 1½ inches in diameter, which the next day was surrounded by a wide dark blue zone. The animal died in forty-eight hours and from the original lesion as well as from the liver, lungs, spleen, kidneys and heart blood *B. violaceus* was recovered in pure and abundant culture. September 8 x-ray examination showed the chest, lungs and bony framework to be normal. The urine

August 17 erythrocytes numbered 4,032,000 leukocytes 25,000, with 88 per cent neutrophils, hemoglobin 90 per cent August 26 the erythrocytes numbered 2,832,000, leukocytes 10,600, hemoglobin 55 per cent September 1, erythrocytes numbered 2,310,000, hemoglobin 50 per cent September 8, erythrocytes numbered 2,700,000, leukocytes 10,800, neutrophils 80, hemoglobin 48 per cent

**Treatment**—In the beginning, it should be noted that the patient had been under treatment for four days before he was seen by us During this time he had been given 80 grams (5 Gm) of sulfanilamide daily He had experienced marled gastric and mental upset by the time of his admission to the hospital It was thought at first that the appearance of the lesions might be due to a chemical change brought about by some local treatment, but such was not the case

chart shows only two point observations for each twenty-four hour period All readings were rectal Within the first week of illness a great deal of abdominal distention occurred, and vomiting was frequent for several days Simultaneously, large liquid stools appeared which were not of noxious odor and were jet black Repeated tests for blood gave negative results, and the black stools were never satisfactorily explained The patient lost weight rapidly and it became evident that his only hope for recovery lay in building up an immunity in the blood stream before he became exhausted physically The transfusions made a great deal of difference in his appearance and in the clinical course in a short time

Approximately two weeks after the last temperature chart was made he was having a very slight rise in temperature each day but was feeling well and was allowed to be up He was

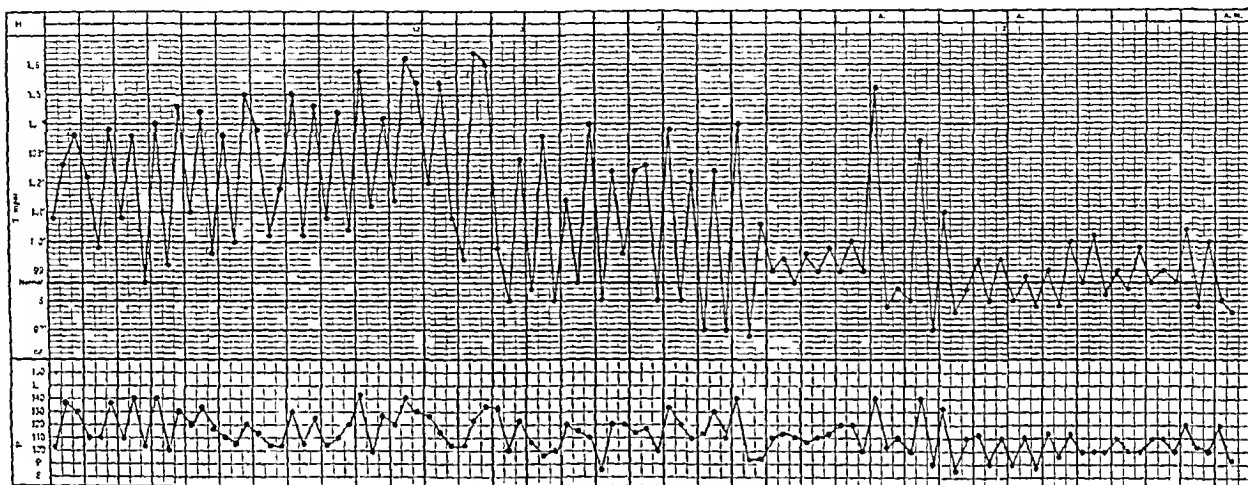


Fig 3—Temperature and pulse

Cultures of material from the local lesions and of the blood were taken The lesions were thought to be of a mixed type infection due to the pustular ring and the marked cellulitis exhibited on the left arm Temporarily ointment of ammoniated mercury (U S P) was applied under a gauze dressing over each lesion After three days a culture was taken from the midst of the ointment covering one of the lesions and the same bacillus was found in pure culture The lesions were spreading radially from day to day always accompanied by the peculiar violet color in the skin At this time it was decided to use wet dressings and a solution of 1:2,000 mercuric iodine was used for several days The lesions still showed no sign of healing and the culture was still positive for the one organism Because of some of its cultural characteristics and its pigment formation it was thought that perhaps a wet dressing of an acid solution would be more efficacious Accordingly 7 per cent acetic acid was used for a time with the same result

At about this time the child's condition appeared desperate and since the lesions had shown no tendency to stop spreading and new ones were appearing constantly it was decided to cleanse all of them and cauterize them with 10 per cent silver nitrate solution This act caused a great deal of pain but accomplished nothing else Subsequently freshly prepared dilute solution of sodium hypochlorite was used for a long time It might be stated that nothing that was used as a local application appeared to inhibit the growth of the organisms or to stop the spreading lesions Cultures remained positive until they were all healed

One transfusion of citrated blood (100 cc) was given September 3 This was followed by marked improvement within two days A second transfusion (250 cc) of citrated blood was given September 11 with a subsequent marked improvement

**Clinical Course**—As will be seen in the accompanying chart of temperature and pulse (fig 3), the patient was very ill during most of the course of the disease The temperature

barely able to stand and walk a few steps and appeared greatly emaciated The last skin lesion had healed by Oct 26, 1937 The violet pigmentation persisted in the scars of the healed lesions

Corcunan Building

#### THE AMOUNT OF ANTITOXIN USED IN A CASE OF TETANUS

H A CABLES MD EAST ST LOUIS ILL

The case reported here is submitted principally because of the amount of antitoxin used but also for some peculiar features of the disease The report of the case was prepared by Dr W H West, the medical intern, and presented to the staff meeting of St Mary's Hospital His report is as follows

A man, aged 42, American of German descent, a salesman for a plumbing supply company, admitted to the hospital July 2, 1937, complained chiefly of spasms of the muscles of the neck and abdomen June 28 he was treated by a dentist for alveolar abscess The patient was unaware of this abscess until the dentist on examination of the teeth a few months previously had diagnosed its presence At no time had it caused any discomfort The dentist opened the gums in the upper right side and packed them with surgical dressing (dental) The following day the patient had a mild fever and several chills These were thought to be due to the alveolar abscess Four days after the dental surgery was performed the patient noticed an increasing tenseness of the muscles of the neck June 30 he had two acute spasms tonic in nature, drawing the head posteriorly and lasting from three to four minutes Their onset was caused by any quick movement The spasms were not painful There was inability to open the mouth as normally The day previous to admission to the hospital he had six such spasms associated with spasms of the upper abdominal muscles



The patient recalled picking blackberries about June 20, at which time he repaired a flat tire on a dusty road, he had some superficial scratches on his hands at this time.

There were no important points in the past history except that twelve years previously he injured the right eye, the vision of which was lost.

On physical examination July 2, the patient was well developed and had a bronze complexion, he weighed 185 pounds (84 Kg). The palpebral fissures were wide, showing the sclera of the eyes, there was a peculiar snoring appearance, with the teeth visible. The patient was rational cooperative and in no evident pain. The right pupil was small and there was no response to direct light (traumatic cataract). The left pupil was small, with no response to direct light. The facial muscles and the muscles of mastication were found to be slightly rigid. The gums were not tender and the teeth were in excellent condition. The sternomastoid and trapezius muscles were rigid, the head was slightly retracted, it being impossible to flex the head on the chest. There was tenderness inferior to the right mastoid region. The heart and lungs showed no abnormalities. The abdominal muscles above the umbilicus were tense. The genitalia and extremities showed no abnormalities except for a slight mark on the left palm received from a blackberry briar. This was in the outer layer of the skin and showed no signs of inflammation.

Therefore a patient with trismus, opisthotonos, risus sardonicus, rigid abdominal muscles, hyperactive tendon reflexes, abdominal and cremasteric reflexes absent, no paralysis and general hyperesthesia was our subject.

Tetanus and meningitis were thought of, but, with no history of headache combined with the peculiar spasms, meningitis seemed to be ruled out. Twenty-three hours later a spinal tap was done showing the spinal fluid to be under pressure. There was a cell count of 3 and no globulin. The blood count revealed erythrocytes 4,760,000, leukocytes 15,200, hemoglobin 85 per cent, stab cells 13 per cent, segmented cells 63 per cent, lymphocytes 9 per cent and monocytes 3 per cent.

A catheterized specimen of urine was normal and acid. There was no bowel movement for five days after entrance until an enema was given. Twelve hours after admission the patient noticed difficulty in swallowing. He was unable to void for twenty-four hours after entrance at which time he was catheterized. Thereafter no difficulty was experienced.

The patient began receiving tetanus antitoxin on his second day in the hospital, 25,000 units was given every four hours, 15,000 of which was given intramuscularly and 10,000 units intravenously. One hour 2 cc of 25 per cent magnesium sulfate intramuscularly and the next hour 2 grams (0.13 Gm) of soluble phenobarbital subcutaneously were given. This treatment was continued alternating hour by hour. With each serum injection 1 cc of epinephrine hydrochloride was given.

The first four or five days in the hospital, mild transient painful spasms of the abdominal and cervical muscles were experienced about forty-eight or fifty times in twenty-four hours. These were at times from fifteen to twenty minutes apart, lasting from a few seconds to two minutes. At the last the left leg was included in the spasm. Any unusual noise or disturbance would cause onset of spasm. However, after the spasm was over the muscles would relax with the exception of the upper abdominal, facial and cervical muscles. Trismus, risus sardonicus and opisthotonos remained in practically the same degree as on entrance. The inability to swallow increased the second day after entrance until the patient was able to take fluids in only very small amounts without strangling. The third day after entrance this condition gradually improved.

By the seventh day under this treatment the spasms had almost left except for a very occasional one occurring when the patient awakened. Rigidity of abdominal and cervical muscles had decreased and the patient was able to open his mouth somewhat wider. He slept most of the time at this period.

It was decided to give the 25,000 units of antitetanus serum every six hours and to administer the soluble phenobarbital and magnesium sulfate as before. On the eighth day the serum was given every eight hours. This was continued until the

tenth hospital day, when the patient had five spasms, as to those experienced previously. The serum was then injected every six hours.

On the nineteenth day after the first serum was injected he had a temperature of 102.5 F. The next day a scarlatina rash began to develop on the cubital region of the left elbow and left gluteal region, where most of the serum had been injected. By the next day this was diffused and "itchy". The rash lasted seven days and would increase in intensity about two hours after a serum injection. The patient felt relief at the application of calamine lotion and the administration of 1 cc of epinephrine subcutaneously.

The last spasm was noticed July 19. The hyperactive reflexes gradually decreased after the first week in the hospital, as seen as the Babinski reflex, opisthotonos, risus sardonicus and Kernig reflex.

Thirty days after serum treatment was started, urticaria consisting of blanched wheals that were about 2 cm in diameter occurred. This condition lasted for two days. Epinephrine produced some effect.

Gradually the tetanus antitoxin was decreased. The soluble phenobarbital and magnesium sulfate medication was stopped on the twenty-sixth hospital day. One month after entrance the patient was permitted up in the wheel chair. The tetanus antitoxin was discontinued on the forty-second day and the patient was permitted to go home two days later. He walked out of the hospital. Apparently all rigidity of the muscles had left except a slight restriction of motion of the lower jaw on the neck. The patient's weight on dismissal was 175 pounds (79.4 kg). The urine was normal.

Chemical analysis of the blood revealed hemoglobin 80 per cent, leukocytes 6,200, eosinophils 6 per cent, stab cells 6 per cent, segmented cells 65 per cent, lymphocytes 9 per cent and monocytes 2 per cent.

Altogether, the patient received 3,460,000 units of tetanus antitoxin, 700,000 units was given intravenously and 2,760,000 units intramuscularly. This was given over a period of forty-one days. With the modern methods of preparation of tetanus antitoxin it is possible to give large amounts of it with no serum sickness, which was caused with the older types of horse serum.

It is best to continue serum administration as long as any increased tonus of muscles is present, as shown by the decrease in amount of serum injection in our case and the redevelopment of spasms. This seems to disprove an older idea that tetanus antitoxin given late in the disease does no good. This case presents the problem in which the focus of infection was not found, a chronic release of the tetanus toxin into the bloodstream taking place, the antitoxin being needed to neutralize it. It does not seem probable that the tetanus originated from the opening of the abscesses, because of lack of time of incubation for such an infection as we had.

No ill effects from magnesium sulfate intramuscularly were noted, although the patient received 24 cc of 25 per cent solution intramuscularly for twenty-five consecutive days. The blood pressure fell only 20 mm of mercury during this time.

Therefore it seems advisable to give rest and freedom from any disturbance, maintain nourishment, prolong serum treatment as long as there are any symptoms, and administer sedatives.

First National Bank Building

**Probabilities**—The smelting of iron ores probably began in southeastern Asia Minor not much later than 1500 B. C. roughly 3400 years ago. Bronze was cast in the same general area at least as early as the beginning of the third millennium before Christ more than 4900 years ago. Copper was reduced from its ores hammered and cast into tools weapons and ornaments for perhaps a thousand years before its alloy, brass, came into use. Thus six thousand years from today take us back to the Stone Age even in those areas where the culture progressed with the greatest speed—Hooton, E. A. Apes Men and Morons, New York, G. P. Putnam & Sons, page 53.

## Special Articles

### ROCKY MOUNTAIN SPOTTED FEVER

R. R. PARKER, PH.D.

Director Rocky Mountain Laboratory United States Public Health Service  
HAMILTON, MONT.

(Concluded from page 1188)

The clinical picture varies considerably. On the one extreme are ambulatory patients and abortive attacks and on the other fulminating infections with an early fatal termination. Most infections fall between these two extremes and are of more typical symptomatology, with the case fatality rate varying in different foci. Extremely mild attacks without rash presumably occur, but in such cases a specific diagnosis of spotted fever cannot be otherwise than presumptive.

The usual ambulatory patient has a low fever, the rash is scanty and may be scattered or localized and the patient is not sufficiently ill to remain in bed. The duration is less than two weeks.

Abortive attacks generally have a rather sudden stormy onset with a temperature as high as 104 F and a pulse as high as 130, but the symptoms rapidly lessen in severity and the rash is more or less fleeting. Recovery is complete in from several days to one week.

Patients with a fulminating infection die in from three to five days. They are so highly toxic that the body defenses are literally overwhelmed from the very onset. I have observed that they either have no rash or, if it appears, the spots rapidly coalesce to form large ecchymotic blotches. There is early evidence of the involvement of the central nervous system.

The following description applies to the more typical infections, which are vastly in the majority. If the infection is fatal, death usually occurs between the ninth and the fifteenth day but may be earlier or considerably later.

The incubation period is from two to five days in the more severe infections and from three to fourteen days in the milder ones. There may be a prodromal period of from two to three days or longer, characterized by loss of appetite, irritability and malaise and frequently by chilly sensations. On the other hand, the onset may be sudden and accompanied by some combination of the following symptoms: a distinct chill, marked malaise, sweating, pronounced backache, frontal and occipital headache, injection of the conjunctivae, sensitivity of the eyes to pressure, photophobia, pain in the upper part of the abdomen, pains in the bones and muscles or both (rarely absent), nosebleed, nausea and vomiting. The eyes may appear dull. Delirium, aphasia and lack of coordination of movements are less common. The severity of the symptoms increases more or less rapidly, depending on the virulence of the infecting strain. Chilling may continue. The face soon assumes a typical dusky flush and an apprehensive expression is far from uncommon, particularly when the infection is severe. Often there is a definite body odor. Cyanosis is frequent. The pains in the muscles and bones may diminish with the appearance of the rash. The spleen is enlarged and, if palpable, can often be felt by the third day. Edema, if present, may be generalized but is more frequently limited to the extremities or to the face.

The symptoms most often complained of at the onset are frontal and occipital headache, intense itching in the lumbar region and marked malaise.

The typical rash, which is a manifestation of the specific lesions in the walls of the blood vessels, usually appears on the second, third or fourth day but may be delayed until the fifth or sixth. It is sometimes preceded by a mottled appearance of the skin and is most often observed first on the wrists and ankles and less commonly on the back. Sometimes it is noted next on the forehead. At first it is from pale to bright rose and commonly macular but sometimes papular. If maculopapular it occasionally persists in this form, but it usually becomes macular. It extends rapidly to all or most of the body, including the palms of the hands, the soles of the feet, the scalp and occasionally the eyelids and the mucous membrane of the mouth and throat. It is usually less marked on the abdomen and the face. The color at first disappears on pressure, but later does not, and becomes darker and more or less bluish. The larger and more scattered the spots and the brighter their color remains as the infection progresses, the better the prognosis. Small or pinhead spots that rapidly become darker and more dense indicate a more severe type of infection, and in such cases the rash soon becomes hemorrhagic and more or less confluent and blotchy. When the infection is less severe, successive "crops" of spots are frequently discernible, these crops following each other at intervals of several days. It is not uncommon to receive reports of one two or three crop cases. After recovery, pigmented areas may be left, which become reddish on exposure to heat or cold or on exertion.

The rash is the visible evidence of the specific lesions in the walls of the blood vessels. These lesions are characterized by proliferation of endothelial cells, local necrosis of endothelium and smooth muscle, and thrombosis. In the more severe attacks and in fatal attacks in which death is delayed, there may be resultant sloughing, the parts commonly affected being the scrotum, prepuce, vulva, dependent portions of the body and buttocks. Sometimes the soft palate is involved.

The febrile period is commonly from two to three weeks but may be shorter or longer. After onset, the fever increases at a rate and degree corresponding to the virulence of the infecting strain. In milder infections the rise is slower and the maximum may not be greater than 103 F. In the highly fatal type of infection the temperature rises more rapidly and to a maximum of from 104 to 106. More or less marked morning remissions are the rule. The maximum temperature usually persists into or through the second week. In patients who are recovering the temperature falls by lysis and most often reaches normal about the middle or end of the third week. In patients infected with variabilis strains, lysis is usually accomplished in three or four days, but in those infected with andersoni strains frequently extends over seven or eight days. In fatal attacks there is occasionally terminal hyperpyrexia, the temperature reaching as high as 108.4 F.

The pulse at first is full and strong and the rate in less toxic patients may not exceed 90 beats a minute. In the more toxic patients it tends to become shallow and the rate may range from 110 to 160. A high pulse rate and a high temperature soon after onset are unfavorable signs.

The lungs are usually not involved, but a slight hacking, nonproductive, bronchial cough is typical.

Restlessness and insomnia are among the pronounced symptoms. Hyperesthesia of the skin and neuritis of varying degrees are common. The patient's mind may

than the infection test. If highly fatal strains of passage virus are employed as a source of virus for the protection test, it is essential to use serum virus rather than the whole blood virus. The latter is frequently so potent that definite protective properties of convalescent serum may be overwhelmed and an apparently negative test be secured. It is also important not to use excessive amounts of virus. This test has more value in cases of Rocky Mountain spotted fever than in cases of endemic typhus.

Whenever possible, it is desirable to make both infection and agglutination tests. The protection test is of value under two conditions: first if neither of the other tests has been made and, second, as a check on uncertain results given by one or both of these tests.

The Weil-Felix reaction and the protection test are of no value for testing for past infections. The agglutinin titer for *Proteus* X strains falls rapidly after recovery is complete, and it is a rare patient whose blood serum will show definite virus-neutralizing value a year after illness.

#### PROPHYLAXIS

Control of the tick carriers of Rocky Mountain spotted fever has not proved feasible except perhaps under highly localized and special conditions. There are therefore but two avenues for preventing infection with Rocky Mountain spotted fever: first, personal care, second, vaccination. Under personal care are included the avoidance of tick bites, the wearing of suitable clothing and the early removal of any ticks which may become attached to the body.

Of course, the best method of avoiding infection is to stay away from known infected areas. This is not possible, however, for a large part of the population in many affected regions. Furthermore, any section in which a tick carrier is present is potentially dangerous, and each year cases are being reported from areas in which the disease was hitherto unsuspected of being endemic.

In regard to suitable clothing there is but one point of first importance, namely, the wearing of apparel that will prevent ticks from attaching to or crawling up the legs. For this purpose high boots, leggings, puttees and socks that are worn over trouser legs are all of real value. The ticks, which usually transfer from vegetation to the clothing at a height of less than 18 inches from the ground, will then crawl up the outside surface of the clothing and most of them can be seen and removed. Those that reach the back of the neck, as many do if not discovered, even if entrance through the clothing has been made at some lower point, will usually be felt when they touch the skin or hairs on the neck. It is good practice when in dangerous country to pass the hand over the back of the neck occasionally to feel for ticks.

Ticks are far more likely to secure a hold on rough clothing than on clothing of smooth texture. Each type of clothing has its advantages, however. The progress of the tick is impeded by the nap of rough cloth, but fewer ticks secure a hold if the cloth is smooth.

Women who go into dangerous areas temporarily for camping or other purposes should whenever feasible wear men's attire similar to that suggested.

If one is continually in tick country, some ticks will reach the body in spite of all precautions. It is necessary therefore that the foregoing measures be supplemented by the examination of the body and the inside of the clothing. Ticks seldom attach at once, and since

they but rarely transfer infection until they have fed for several hours, examinations made twice a day, at noon and on retiring, are usually sufficient. In particularly dangerous areas, however, more frequent examinations are indicated, or, at least, any local irritation should be investigated to determine the cause.

When one retires, all clothing should be removed. This is mentioned because of the common habit among campers and many persons working outdoors of wearing part of the daytime garments at night. Both the body and the clothing should be carefully examined, and the latter should be so placed that any undiscovered ticks are unlikely to crawl from it to the bed. Exceptional care should be used when two persons occupy the same bed. If an infected tick becomes detached from one and attaches to the other, infection of the latter may take place quickly because the virus has already been reactivated. Instances of double infections caused in this manner by a single tick are far from uncommon. In one known instance three persons were thus infected.

Those who are exposed for only a few hours or for part of a day would do well to make a complete change of clothing on reaching the home, and the removed clothing should be so cared for that any unobserved ticks will not be a danger to other members of the household or to other persons.

Clothing placed on the ground attracts ticks from some distance and should be carefully examined before being put on. Ticks will crawl to persons who remain in small circumscribed areas for shorter or longer periods, such as, for example, persons sitting or lying on the ground. Persons sleeping outdoors should use care in selecting a camp or bed site. In this connection, one should bear in mind that ticks are usually more numerous where rodents are more abundant. Such places should be avoided. Within the range of the Rocky Mountain wood tick, one of the safest camping locations is in timber, particularly where low vegetation is scanty, but, on the other hand, open areas in timber may be dangerous. In sagebrush country one should keep away from the sagebrush. Proximity to trails and old roads should be avoided. Particular care should be exercised by persons following trails, since ticks tend to congregate on the vegetation on each side or on the upper side of trails that cross slopes. Grassy strips in the middle of little-used roads and vegetation along road sides are often heavily tick infested.

If a tick is found attached to the body it is best to remove it immediately. This is desirable because every added moment of attachment increases the danger of spotted fever or other tick-borne infection. Many practices have been employed for removal. However the desired result is most easily and quickly accomplished by gently pulling the tick off with the fingers. So far as the ticks that transmit spotted fever are concerned there is little ground for the idea that the mouth parts will thus be left in the wound in spite of popular opinion to the contrary. Better the mouth parts, however, than spotted fever, tularemia or some other equally unattractive infection. However, there is a definite danger of breaking off the mouth parts of ticks which have a longer hypostome, such as, for example, *Ixodes ricinus californicus*, which is prevalent in parts of the west coast of the United States and Canada and *Amblyomma americanum* common in parts of the South Central and South Atlantic States.

When sterile instruments are at hand, ticks of any species may be removed easily by pulling the tick gently

so as to make a tent of the skin surrounding the site of attachment and then slipping the point of a hypodermic needle or scalpel under the mouth parts. The instrument is then raised, thus removing the mouth parts with a minimum of tissue. However the tick is removed, iodine or some other agent for asepsis should be applied to the site of the bite. A silver nitrate pencil, which can be purchased for ten cents at any drug store, is convenient for outdoor use.

There is no proved satisfactory material which can be placed either on the clothing or on the body to prevent tick attachment.

The United States Public Health Service vaccine for Rocky Mountain spotted fever is prepared at, and distributed from, the Rocky Mountain Laboratory of the National Institute of Health at Hamilton, Mont. So far as it is available, it should be used by those who live in or frequent dangerous areas. Unfortunately this vaccine, which is prepared from the tissues of infected Rocky Mountain wood ticks, is difficult and expensive to produce, and at the present time it is possible to manufacture annually enough for only about 80,000 persons. The cost exceeds \$300 a liter.

This vaccine is used in two 2 cc doses given five days apart either subcutaneously or intramuscularly. For the most part the reaction is local, but in some persons it is constitutional and occasionally severe. Anaphylaxis is rare. The data indicate that the majority of persons are fully protected against the less virulent strains of Rocky Mountain spotted fever but that the average person is only partially protected against the highly fatal type. The maximum degree of protection conferred is retained for less than one year.

During the thirteen years in which the vaccine has been in use fifty-nine persons have been infected the same year in which vaccine was administered. Thirty-three were adults infected in the western Montana area of highly fatal infection (fifteen were laboratory workers, and eighteen were infected spontaneously), three attacks proved fatal, a case fatality rate of 9.09 per cent. During the same period in the same area fifty nonvaccinated adults were infected, thirty-eight died, a case fatality rate of 76 per cent. The fatality rate in this area, therefore, has been approximately 66 per cent lower for the vaccinated group. The remaining twenty-six persons infected the same year in which they were vaccinated acquired infection in areas where the disease is less severe, none died.

In addition to these data there are records of thirty-five cases in which infection took place from one to seven years after vaccination. Of twenty persons infected from one to one and one-third years after vaccination, none died, but three of the remaining fifteen died. They had received vaccine two, three and four years, respectively, before infection. Two of these were infected in western Montana.

The conclusions drawn from the use of this vaccine to date are briefly summarized as follows:

The vaccine has definite protective value. The degree and the duration of protection vary with the person vaccinated and with the degree of virulence of the infecting strain of spotted fever virus.

The average person vaccinated in the spring retains marked immunity during at least the remainder of that year. The immunity is usually sufficient to afford full protection against the relatively mild strains of spotted fever but is apparently progressively less effective as the virulence of infecting strains is increased. Regarding the highly fatal type the data suggest that most

children are fully protected but only occasional adults. In the majority of the latter, however, protection is sufficient to ameliorate markedly the usual severe course of infection and to insure recovery. Hospitalization and nursing care are decided aids to persons in whom there seems to be a delicate balance between the degree of protection conferred and the aggressiveness of the infecting strain.

If a person is infected during a period beginning several days after the first injection but before the full degree of immunity has developed after the second or third, there is a strong probability that the subsequent clinical course of the disease will be affected favorably, even in areas of high case fatality rate.

In areas where relatively mild infections prevail and the incubation period is prolonged, the administration of vaccine as soon as possible after tick bite may ameliorate an impending infection. This appears particularly probable in the case of persons who have been vaccinated in one or more previous years. The procedure is not recommended in areas of highly fatal infections where the incubation period is short unless the person has been previously vaccinated.

It now seems probable that a considerable percentage of vaccinated persons carry a greater or less degree of immunity over into the second year even against highly virulent strains. The degree of this residual immunity appears to be greater in persons who have been vaccinated two or more successive years. The evidence as to whether any immunity is carried beyond the second year is less definite. Until further and more definite data are available, it is necessary to recommend that vaccination of exposed persons be repeated each year.

Of persons vaccinated and infected the same year, those who have received vaccine two or more successive years appear to have greater resistance than those who have received vaccine only one year. The usual dose can probably be halved for persons who have been vaccinated at least three successive years.

#### CONCLUSION

Rocky Mountain spotted fever is only one of several tick-borne diseases endemic in North America. Tularemia is widespread in the United States and has been recognized in several widely separated points in Canada. It is transmitted to man by both the Rocky Mountain wood tick and the American dog tick, perhaps by *Ixodes ricinus californicus* along the Pacific coast, and by other means. In nature it is carried by the rabbit tick and probably by the bird tick, *H. cinabarina*. The last species infests only birds. Several other species have been shown to be potential carriers.

Tick paralysis is a more localized problem and is reported sporadically from parts of Oregon, Washington, Idaho and Montana but is perhaps most prevalent in southeastern British Columbia. Rare cases occur in Wyoming. As far as known, it is caused only by the female Rocky Mountain wood tick.

Colorado tick fever is another disease transmitted by the Rocky Mountain wood tick. It has been reported most often from Colorado and Wyoming but is present also in Utah and Idaho and probably has an even wider occurrence. Suggestive cases have been reported from California.

Relapsing fever is now known to be endemic in several Western states and in southeastern British Columbia and, like Colorado tick fever, will probably be found to have an even wider distribution. At least two ticks of the genus *Ornithodoros*, *turicata* and *hermsi*, are involved in its transmission.

A new filter-passing agent, recently found in the Rocky Mountain wood tick by Dr. Gordon E. Davis and Dr. Herald R. Cox of the Hamilton Laboratory, has still more recently been identified in *Dermacentor occidentalis* in southwestern Oregon and in California. It unquestionably causes a rodent disease and possibly one to which man is susceptible. It may be represented by some of the numerous unidentified disease conditions reported each year as following tick bite, in fact, three suspicious infections have recently been observed.

Secondary infections may occur as a result of the bites of the ticks thus far mentioned as well as of others. These sometimes result in chronic lesions, septicemia, loss of limb or, occasionally, death.

These other disease conditions tick borne and caused by tick bite have been briefly referred to because many of the observations concerning them have been made within relatively recent years and because, along with the data relating to Rocky Mountain spotted fever, they show that there is in North America a general tick and disease problem of widening scope geographically, from the standpoint of disease entities, and regarding the number of species of ticks involved.

This problem is most serious in the West where topography, climate and the limitations otherwise imposed on economic development have favored the persistence of essentially natural floral and faunal conditions over vast areas. These in turn have fostered, and will likely continue to foster, the maintenance and perpetuation not only of such diseases of nature as those herein discussed but also of considerable populations of the ticks and the other parasites which transmit them to man.

## RIBOFLAVIN

### DIETARY SOURCES AND REQUIREMENTS

HENRY C. SHERMAN, Ph.D., D.Sc.

AND

CAROLINE SHERMAN LANFORD, Ph.D.

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*This article and others recently published or to be published comprise a new series on the present status of our knowledge of the vitamins. They have been prepared under the general auspices of the Council on Pharmacy and Chemistry and the Council on Foods. The opinions expressed are those of the authors and not necessarily the opinions of either council. The articles will be published later in book form.—Ed*

At the time of the preceding symposium in 1932, the terms vitamin B<sub>2</sub> and G were used synonymously by Sure<sup>1</sup> as standing for the more heat stable part of the vitamin B complex, and Underhill<sup>2</sup> wrote of vitamin G deficiency as "intimately associated with the complex syndrome of symptoms included under the term pellagra." At the time of the present writing (the summer of 1937) the evidence appears conclusive that there are at least three relatively heat stable substances in the vitamin B complex: (1) riboflavin, (2) vitamin B<sub>12</sub>, and (3) another substance which perhaps may be considered P-P or the Goldberger pellagra-preventive substance which may or may not be the same as the substance which prevents blacktongue in dogs. (It is also held by some careful students that

more than one substance may be involved in the nutritional problem of human pellagra, even when this is distinguished from all so-called pellagra-like disorders in other species.)

Riboflavin and vitamin B<sub>6</sub> are both required for growth and for the maintenance of health in the rat and probably in mammals generally, including man. The fact that we do not know any specific human disease due to shortage of riboflavin is entirely compatible with the view that this substance is important in human nutrition. A detailed discussion of reasons for believing that riboflavin plays a role in the life process of the human as of other species would probably seem superfluous to a majority of readers at this date, and to a still larger majority in the future. Suffice it to point out that our species has evolved in the direction not of shortening the list of things it needs but of lengthening the list of things it can use to advantage.

Shortage of riboflavin stunts the growth of the young and at any age causes a lowering of general tone and a condition of premature aging or unwholesomeness of the skin, with loss of hair. The skin condition has sometimes been called a "nonspecific" dermatitis or dermatosis as distinguished from the "florid" dermatitis of vitamin B<sub>6</sub> deficiency.<sup>3</sup>

The substance here called riboflavin was first described as lactoflavin (previously called lactochrome)<sup>4</sup>. Ovocflavin and hepatoflavin, first so named for the materials from which they were prepared, were soon found to be chemically identical with lactoflavin.

The same substance has also been reported as isolated from several other sources as widely separated biologically as the milk of different species, muscle, liver, kidney, eggs, fish eyes, malt, grass, dandelion flowers, and both marine and fresh water algae as typified by *Fucus vesiculosus* and *Cladophora suteri* (Karrer, Heilbron, Parry and Phipers<sup>5</sup>).

### DIETARY SOURCES OF RIBOFLAVIN

Corresponding with the wide biologic distribution of riboflavin in the plant and animal kingdoms as just mentioned, it is found more generally present in significant amounts among varied food materials than is vitamin A but less abundant in the seeds which form so large a part of man's food than is vitamin B<sub>1</sub>. It is doubtless true, as suggested by Eusterman and Wilbur in the previous symposium, "that certain individuals, the poor in particular, do not consume enough foods that contain [significant amounts of] vitamin A and vitamin G to insure a state of nutrition essential to the greatest physical stamina, efficiency and ability to resist infectious diseases." In fact, this view is strongly reinforced by the experimental finding<sup>6</sup> that the optimal intake of vitamin G (riboflavin) is very much (probably at least fourfold) higher than is easily demonstrable as strictly necessary.

The relative amounts of riboflavin in foods are therefore a matter of importance to health and should be given weight in present-day considerations of food values and planning of the dietary.

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4. Bocher, Iola E. Concentration and Chemical Nature of Vitamin G. *J. Biol. Chem.* **107**, 591 (Nov.) 1934.

5. Karrer, J. Nutritionally Important Natural Elements Held. *Chim. Acta* **19**, E 33 (special number) 1936.

6. Heilbron, J. M., Parry, E. C. and Phipers, R. F. The Al-  
III. The Isolation of Lactoflavin. *Biochem. J.* **29**, 1342 (June) 1935.

7. Eusterman, G. I. and Wilbur, D. L. in The Vitamins, A Symposium on the Present Status of the Knowledge of Vitamins. Chicago, American Medical Association, 1937, p. 25.

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From the Department of Chemistry, Columbia University.  
1. Sure, Barnett. The Present Status of Vitamin B<sub>2</sub> (G). *J. A. M. A.* **99**, 26 (July 2) 1932.  
2. Underhill, F. P. Clinical Aspects of Vitamin G Deficiency. *J. A. M. A.* **99**, 120 (July 9) 1932.



From longer lists published elsewhere<sup>9</sup> and from data reported by Daniel and Munsell<sup>10</sup> we selected for table 1 some typical foods, including those which have thus far been most thoroughly studied in this respect.<sup>11</sup> Some of these deserve additional brief comment.

TABLE 1—Approximate Riboflavin Values of Certain Foods\*

	Units per 100 Gm
Apples	10 to 43
Bananas	26 to 30
Beef lean	90 to 130
Carrots	30 to 75
Carrot tops	200
Cheese	44 to 285
Cottonseed flour or meal	1.0 to 300
Eggs	99 to 130
Egg white	60 to 120
Egg yolk	150 to 300
Flax	140 to 260
Liver	500 to 1900
Milk	34 to 100
Oranges	13 to 65
Potatoes	15 to 31
Spinach	100 to 175
Tomatoes	12 to 25
Turnips	17 to 30
Turnip greens	300
Wheat entire	45 to 124
Wheat germ	1.0 to 404
Wheat dry	7.0 to 2300

\* Selected from among the data on pages 415 to 417 of Sherman's *Chemistry of Food and Nutrition* ed 5 1937 from Daniel and Munsell<sup>10</sup> and from Levine and Remington.<sup>11</sup>

† These units are Sherman-Bourquin units of vitamin G determined by the rat growth method of Bourquin and Sherman<sup>12</sup> and of Page<sup>13</sup> as more fully explained below.

Riboflavin appears to be formed primarily in the green leaves of actively growing plants and to remain there in higher concentration than elsewhere in the plant. Thus, of the three tissues constituting the edible portion of broccoli, the flower buds contain only a little over half as much riboflavin as the leaves, and the twigs still less. Similarly, carrot tops show something like four times the riboflavin value of the roots. This concentration of riboflavin in the green leaves where it is formed presents an interesting contrast to the transfer of carotene from leaf to root which occurs in the carrot.

There are indications that, as the leaves mature and dry, there may be a considerable diminution in their riboflavin value. Correspondingly it was found at the Ohio Agricultural Experiment Station<sup>14</sup> that milk from cows receiving an abundance of fresh young grass tended to be slightly richer in riboflavin than the milk of cows fed drier and more mature grass, but in milk as ordinarily produced under present-day conditions of dairy farming seasonal variations of vitamin value are much smaller than would be inferred from many of the statements in the literature. Perhaps the best present evidence in this case is expressed in the figures of the seventeen available quantitative results of ten independent investigations. These show an average of  $67 \pm 3$  Bourquin-Sherman<sup>12</sup> units of riboflavin per hundred grams of milk, with a coefficient of variation of 28, which is a lesser variability than would perhaps have been expected. Nor should there be any serious

diminution of the riboflavin value of milk in pasteurization or in preservation by drying or by condensation (partial evaporation) and canning. Milk is thus a relatively stable and dependable source of riboflavin and will almost always be the chief source in the dietaries of children because of the prominence that should be given to milk in the dietary for other nutritional reasons as well. In any long view of food economics there is also the consideration that milk is a food crop the production of which can be greatly increased in response to consumer demand, with little if any increase in cost per unit to the consumer.

A contrasting case in this respect is that of liver, the supply of which can be increased only by rearing and slaughtering whole animals of which the liver is only a very minor part. Hence (as Minot, if we remember correctly, has complained) any emphasis on liver as a food for people in general has the unfortunate result of increase in its cost to those who really need it.

Gyorgy<sup>14</sup> has made semiquantitative comparisons of the riboflavin values of some different flesh foods. He finds fish muscle a poor source of riboflavin, compared with beef and chicken muscle, which he finds to contain about equal concentrations. The red leg muscle of chicken appeared to contain slightly more than the white breast muscle, but this difference does not appear sufficient to justify discrimination in a practical consideration of dietary sources. In Gyorgy's experiments, beef liver appeared about fifteenfold richer than beef muscle, while in the apparently more precise experiments of Day<sup>15</sup> and of Munsell<sup>10</sup> liver showed about tenfold higher riboflavin value than did an equal weight of muscle.

Rose and Phipard<sup>16</sup> recently found that fresh raw peas and lima beans contain about 100 units of riboflavin per hundred grams and observed no loss in

TABLE 2—Relative Prominence of Certain Types of Food (in Diets Costing from \$2.38 to \$3 Weekly per Food-Cost Unit)

Food or Food Group	Per Cent of Food Mooney	Percentages Contributed by Each Food Group to the Total Secured					
		Allo-ries	Pro-tein	Cal-cium	Vita-min A	Vita-min C	Ribo-flavin
Meats and fish	27.5	12.9	36.2	2.7	7.1	0.7	32.2
Eggs	3.0	1.7	4.9	2.7	6.0	5.3	5.3
Milk, cheese, ice cream	12.1	9.5	16.0	60.7	13.9	3.3	34.2
Butter, cream	7.6	9.3	0.4	1.4	16.0	?	0.4
Other fats	3.0	7.8	0.5	0.1	0.8	?	1.1
Breadstuffs, cereals, bakery products	17.6	30.3	27.3	12.0	3.5	0.6	5.7
Sugar, sweets	4.2	12.4	0.1	2.1	?	?	?
Potatoes, sweet potatoes	1.5	3.8	4.4	3.4	2.6	22.8	7.2
Dried legumes, nuts	1.8	2.9	5.3	3.4	0.2	?	0.8
Tomatoes	1.5	0.3	0.4	0.5	0.5	7.8	0.0
Citrus fruits	2.2	1.1	0.5	3.0	0.6	29.6	3.3
Green and yellow vegetables	3.9	0.8	1.4	3.4	32.7	12.8	3.7
Other vegetables	7.4	1.0	1.0	2.8	1.3	8.1	1.2
Other fruits	3.9	2.8	0.7	1.4	4.6	12.3	3.9

\* Adapted from Stebbeling.<sup>17</sup>

either cooking or freezing. In mature seeds of both kinds there appeared to be little diminution in vitamin G (riboflavin) value as compared with the fresh seeds. Pea seedlings showed an increase in riboflavin content over the seeds from which they were sprouted.

14 Gyorgy, Paul. The Distribution of Lactoflavin (and of Vitamin B<sub>2</sub>) in Natural Products of Animal Origin. *Biochem J* 29: 760 (March) 1935.

15 Day, P. L. Vitamin G in Beef and Veal. *J. Home Economics* 23: 65 (1931).

16 Rose, Mary S., and Phipard, Esther H. F. Vitamin B<sub>2</sub> and G Values of Peas and Lima Beans Under Various Conditions. *J. Nutrition* 24: 55 (July) 1937.

<sup>9</sup> Sherman, H. C. *Chemistry of Food and Nutrition* ed 5 New York: Macmillan Company, 1937.

<sup>10</sup> Daniel, I. and Munsell, Hazel E. Vitamin Values of Food. *Bull. U. S. Dept. Agriculture* to be published.

<sup>11</sup> Levine, Harold and Remington, R. F. The Vitamin G Content of Some Foods. *J. Nutrition* 13: 525 (May) 1937.

<sup>12</sup> Hunt, C. H. and Kraus, W. E. The Influence of the Kation of the Cow upon the Vitamin B<sub>2</sub> and Vitamin G Content of Milk. *J. Biol. Chem.* 92: 31 (Aug.) 1911.

<sup>13</sup> Bourquin, Anne and Sherman, H. C. Quantitative Determination of Vitamin C. *J. Am. Chem. Soc.* 53: 501 (Sept.) 1931.

In practice, the actual importance of any given food as a dietary source of riboflavin (or of any other specific nutrient) depends of course not only on the concentration of the substance in the food but also on the place (or quantitative prominence) of the food in the dietary or food supply. Stiebeling<sup>17</sup> has ascertained the relative place of different dietary articles in food budgets and has computed what proportion each contributes of the total of each of several nutrients thus secured. The data for riboflavin and some of the other nutrients are given in abbreviated form in table 2.

It seems sufficiently established that the Bourquin-Sherman method for the measurement of "vitamin G values" measures riboflavin rather than any other factor—and consistently so when the method is carried out strictly as described by its authors. This has been found independently by several users of the method but, of course, should not be assumed for any cases in which the method is modified, especially as to the preparation and use of the 80 per cent alcohol extract of wheat as a source of vitamin B<sub>1</sub>, B<sub>6</sub> and any still unknown "B factors" needed by the rat. Even when the Bourquin-Sherman directions are explicitly followed, the adequacy of the extract to this purpose should be tested by each laboratory on the materials (and test animals) which it uses, for the vitamin B<sub>6</sub> value of wheat is reported to be subject to wide variation as tested in different parts of the world.<sup>18</sup> The amount of riboflavin which the Bourquin-Sherman "unit of vitamin G" represents has been estimated as from about 3 to 5 micrograms. The chief causes of this variation, so far as present knowledge suggests, are (1) differences in purity of previously available preparations of riboflavin, (2) variations of riboflavin requirements with the size of the test animal, (3) completeness of prevention of coprophagy,<sup>19</sup> and (4) the possible influence of some less well defined difference in the nutritional background of the test animal or in the bacteriology of its environment which may influence the precise amount of riboflavin needed or absorbed with a given diet, even when all mechanical precautions for prevention of coprophagy are observed.

#### DIETARY REQUIREMENT FOR RIBOFLAVIN

As yet, estimates of the amounts of riboflavin required for normal human nutrition are necessarily matters of judgment rather than of actual direct measurement. The independent judgments of Rose<sup>20</sup> and of Stiebeling<sup>21</sup> are in substantial agreement and are probably the most influential estimates thus far available. Rose has suggested for children up to 10 years of age at least 400 units a day in all cases, or 20 units per hundred calories if more than 2,000 calories a day is consumed, for adults 20 units per hundred calories. The recommendation of Stiebeling is 450 units for boys under 6 and girls under 7 years of age, 540 units for boys from 7 to 10 and girls from 8 to 13 years of age and 600 units for older children and adults, or 570 units per capita of the population.

How far above these allowances the actual optimum will be found is a question for the future.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE  
HOWARD A. CARTER, Secretary

### THE PRESENT STATUS OF SHORT WAVE DIATHERMY

FRANK H. KRUSEN, M.D.

ROCHESTER, MINN.

About two and a half years ago, in a preliminary report for the Council on Physical Therapy, I<sup>1</sup> pointed out that, with further clinical investigation, short wave diathermy might prove to be a useful therapeutic agent. Sufficient additional data are now available to warrant a further report. From the published mass of conflicting opinions, one may now winnow enough information to draw a number of additional conclusions.

#### DEFINITION

Short wave diathermy may be defined as the therapeutic heating of the bodily tissues by means of an oscillating electric current of extremely high frequency (from 10,000,000 cycles per second and a 30 meter wavelength to 100,000,000 cycles per second and a 3 meter wavelength).

#### NOMENCLATURE

A confusing variety of terms have been suggested to describe such radiation, among them being "short wave therapy" and "ultra-short wave therapy" (Schliephake<sup>2</sup>), "radiotherapy" (Bierman<sup>3</sup>), "radiotherapy" (Kobak<sup>4</sup>), "parathermy" (Turrell<sup>5</sup>), "neo diathermy," "short diathermy" and "ultra-diathermy" (Nagelschmidt<sup>6</sup>), "short" and "ultra-short wave diathermy" and "short wave diathermy." Although there is merit in a number of these designations, the one last mentioned, "short wave diathermy," has been generally considered in the United States as being most acceptable, since these waves are short only in juxtaposition to conventional diathermy and since they may probably be best considered as another form of diathermy. The Council on Physical Therapy considers 'short wave diathermy' acceptable terminology.

#### HISTORY

D'Arsonval's<sup>7</sup> presentation of his experimental data to the Academie des sciences in 1892 constituted the first basis for the application of high frequency currents in medicine. Following the development by De Forest of the triode principle of electronic oscillations,<sup>8</sup> the studies of Gosset and his co-workers<sup>9</sup> in 1924 are considered to be the first scientific investigation of the effect of the oscillating field on living cells. The studies of Schereschewsky<sup>10</sup> (1926) in this country, indicating a specific lethal action of short wave diathermy, later appeared to be disproved by the investigations in 1929 of Christie and Loomis<sup>11</sup> and by those of Kahler and his co-workers<sup>12</sup>. Still later, following Whitney's work at Schenectady, Bork and her co-workers<sup>13</sup> began their outstanding studies which led to the use in the United States of short wave diathermy for the production of therapeutic fevers<sup>14</sup>.

Meanwhile in Germany Esau<sup>15</sup> was beginning studies in 1925 which caused Schliephake<sup>16</sup> to credit

17 Stiebeling, Hazel K. Serial No. R-709, Bureau of Labor Statistics, U. S. Dept. Labor, 1936.

18 George, Paul. In: *Estimations on the Vitamin B Complex*, 1111 Biochem. J. 29, 7-1 (March) 1935. Halliday, Nellie and Evans, H. M. Dietary Production of the Syndrome of Deficiency of Vitamin B<sub>6</sub>. Nutrition 13, 37 (June) 1937.

19 Luge, J. W. An Improvement in Experimental Method for Investigation of Vitamin G Proc. Soc. Exper. Biol. & Med. 30, 47 (Oct) 1932.

20 Rose, Mary S. Laboratory Handbook for Dietetics, ed. 4, New York, Macmillan Company, 1937.

21 Stiebeling, Hazel K. Publications of the U. S. Dept. Agriculture, 1936, and personal communication to the author in April 1937.

From the Section on Physical Therapy, the Mayo Clinic. Read before the International Congress of Radiology, Chicago, Sept. 22, 1937.

Owing to lack of space, this article has been abbreviated here by omission of the bibliographic references. The complete article will be available in the reprint.

2 If the wavelength is less than 12 meter, the ultra prefix is used.

him with having first introduced short wave diathermy devices of sufficient power for satisfactory therapeutics Patzold<sup>19</sup> likewise is credited by German writers<sup>20</sup> with having made important contributions on the physics of short wave diathermy

Unfortunately, these early studies were followed by many pseudoscientific, hyperenthusiastic presentations Kovacs<sup>21</sup> decried the fact that many investigators rushed into print with premature conclusions, and Eidnow<sup>22</sup> pointed out that many workers, in their zeal, had made observations which could not be confirmed

#### APPARATUS

The appliance for the production of short wave diathermy fields resembles in construction a short wave radio transmitter, with the exception that the electrical energy, instead of being dispersed from antennas as in broadcasting, is mostly confined between condenser plates to produce an electric field, or within a coil to produce an electromagnetic field

Bodily tissues, acting partly as conductors and partly as dielectrics when placed within these fields, are allegedly heated by the production of ionic oscillations and molecular friction. Power losses occur. The entire phenomenon, therefore, is customarily designated as "hysteresis." DeWalt<sup>23</sup> has suggested a simple simile to illustrate the manner of heating of dielectrics by short wave diathermy. He stated that the rubbing of a rubber band with the fingers produced heating of it by surface friction and that this might be compared to the heating produced by a current flowing through a substance which offered ohmic resistance. On the other hand, if one should hold the rubber band at the ends and stretch it back and forth, heat would be produced by molecular friction inside the band. This result may be compared to the effect taking place when a high frequency field produces molecular friction and heat losses within a substance which acts as a dielectric.

Two types of apparatus are commonly used, the vacuum tube (or valve) machine and the spark gap device<sup>24</sup>. Holzer and Weissenberg<sup>25</sup> have described a third type, an inexpensive "low output generator," which Weissenberg<sup>25</sup> used for "low intensity treatments", however, I am inclined to agree with Taylor,<sup>26</sup> who said it seemed that the so-called low energy apparatus could have "no effect other than a psychological one." The consensus seems to be that short wave diathermy machines, to be effective, should have a fairly high output in watts.

*Vacuum Tube vs Spark Gap Apparatus*—There is much disagreement concerning the relative effectiveness of vacuum tube and spark gap machines. Speeding<sup>27</sup> felt that spark gap machines were inefficient, and Wilson<sup>28</sup> believed that they possessed a definitely restricted field of action. Holzer<sup>29</sup> said their voltage curves varied considerably and that precise indication of wave length was impossible. Christie<sup>29</sup> said that they had been made practically obsolete by the vacuum tube machine and that for the same degree of heat the damped currents produced higher instantaneous voltages which favored the production of burns. On the other hand the undamped current was smooth and continuous and had a minimum tendency toward sparking. From the opposite point of view, when properly constructed a spark gap apparatus may be very effective. Bierman<sup>30</sup> has used one with considerable satisfaction. Likewise Webster<sup>31</sup> felt that Wilson's criticism of the spark gap machine was unjustified and premature, since he had used one with gratifying results. Although after several years of trial of a

number of these machines, I have had more technical difficulties with them than with tube appliances, I am not prepared to condemn them as unsatisfactory. One may conclude, nevertheless, that most observers prefer the tube apparatus.

#### SHORT WAVE DIATHERMY VS CONVENTIONAL DIATHERMY

In support of the superiority of short wave diathermy over conventional diathermy, it has been said that the former would produce more intense, less hazardous local heat (Davis<sup>32</sup>), that it penetrated certain bodily layers, which were avoided by conventional diathermy (Schliephake<sup>33</sup>), that it had a greater range of flexibility and more profound physiologic action (Kobak<sup>34</sup>), that it was more efficient and rapid in action (Wilson<sup>35</sup>), and that, although diseases rationally treated by heat respond as well to conventional diathermy when the lesions are superficial, deeply situated parts in the thorax and abdomen are better heated by short wave diathermy (Cumberbatch<sup>36</sup>). Wilson<sup>37</sup> reached the questionable conclusion that short wave diathermy was effective in treating suppurative lesions, whereas conventional diathermy was dangerous. Taylor<sup>26</sup> felt that short wave diathermy had the advantages of a deeper heating effect and avoidance of high field concentration around the electrode.

Egan<sup>38</sup> said that short wave diathermy should not be considered as modified conventional diathermy. Speeding<sup>27</sup> stated it as his belief that the effects of the former were not identical with those of the latter. On the other hand, d'Arsonval has been quoted<sup>9</sup> as saying that "there is no wall separating diathermy from short waves." Nagelschmidt<sup>8</sup> pointed out that there were no sudden marked differences in the effects produced by radiations of nearly related wave lengths in other portions of the spectrum, and that none could be expected in this instance. Furthermore, Kovacs<sup>21</sup> stated that, since there was no essential difference between the primary physical effects of the two, one could not expect much difference in their physiologic and therapeutic effects. He felt that short wave diathermy was more convenient to use but that the lack of a proper method of determining dosage was a distinct disadvantage. Kowarschik<sup>39</sup> reported (1933) comparisons of the effects of these two methods on cadavers, which experiments led him to state that it was wrong to assume that short wave diathermy produced relatively greater heating than conventional diathermy. His more recent studies<sup>40</sup> indicate that he credits short wave diathermy with many favorable effects.

Turrell<sup>41</sup> was not of the opinion that short wave diathermy produced improved or increased thermal action as compared with conventional diathermy. Schmidt<sup>42</sup> felt it was unlikely that the former would replace the latter. Eidnow<sup>43</sup> found no results with short wave diathermy which could not be produced by conventional diathermy. Hollender<sup>44</sup> said that no more could be claimed for short wave diathermy than for conventional diathermy, with either there was simply heat production but in the case of the former there was deeper penetration and more facility of application. Clinically I have observed no particular difference in the effects produced, but I have been pleased with the convenience of short wave diathermy. The consensus seems to be that there is no great difference in the effects produced by these two forms of diathermy, but that short wave diathermy produces deeper, more uni-

form heating and is more readily applied, although dosage control is more difficult than with conventional diathermy

#### PHYSICAL EFFECTS OF SHORT WAVE DIATHERMY

*Selective Heating*—There has been much disagreement concerning the problem of selective heating by short wave diathermy. It is frequently stated that certain selective "point heating" effects can be demonstrated *in vitro*. Esau's<sup>44</sup> often described experiment on alkalized water shaken with liquid petrolatum is a typical example. When this emulsion was placed in a condenser field, the temperature increased and it finally began to steam, indicating that the water had "been heated to 100 C" although the temperature of the entire solution was only 60 to 70 C.<sup>34</sup> Whitney's<sup>45</sup> heating of tadpoles in distilled water, which remained comparatively cool is presented as another example of selective heating. Selective heating of non-living substances has been demonstrated by Schliephake,<sup>47</sup> Mortimer<sup>48</sup> and Bachem.<sup>49</sup> Using such examples, enthusiasts have contended that marked *in vivo* selective heating effects on various bodily structures can be effected by proper selection of wave length.

Starting with the studies in 1931 of McLennan,<sup>50</sup> who theorized that, if the dielectric constants of various parts of the body were different, "heating of one member" might be favored by proper orientation, various claims have been advanced.

Schliephake,<sup>47</sup> for example, contended that a unique property of ultra-short waves was their selective thermal action and that it was possible that some parts of tissues—for example, cells, intercellular substances, nuclei and protoplasm—might be affected in different degrees according to their composition. Breitweiser<sup>52</sup> said that there existed, for each combination of wave length and dielectric constant, a particular resistance for which the heating would be a maximum. Bierman and Schwarzschild<sup>30</sup> pointed out that, with the exception of fat, all human tissue has practically the same dielectric constant. They felt that there was a tendency for more uniform heating at higher frequencies but that it was possible to heat a certain type of tissue more than others.

Pratt and Sheard,<sup>53</sup> concluded that, in the living animal, tissues are heated to different degrees by the systemic application of the short wave electric field. (It has been suggested, however, that their use of thermocouples in the field may have produced the variations noted.)

Mortimer's<sup>48</sup> studies indicated that, in live anesthetized dogs with the viscera exposed, the different organs heated up at approximately the same rate, the blood serving as a very efficient distributing mechanism, whereas, in dead dogs, different organs heated at different rates. Bierman<sup>4</sup> questioned the occurrence of selective heating in the living animal, and Chaffee<sup>29</sup> believed that the circulation of blood was a powerful agency toward equalizing the bodily temperature. Wolf<sup>54</sup> said substances with different dielectric constants obviously were heated to different degrees, but that, in the living human being, the slight variations in dielectric constants were equalized by the circulation. Coulter and Osborne<sup>55</sup> said that a selective heat production could readily be demonstrated in inorganic substances and dead tissues, but that in the living animal, owing to dissipation of heat by an efficient circulation, no selective heating could be expected. Kovacs<sup>21</sup> Eidinow,<sup>56</sup> and Mortimer and Osborne<sup>57</sup>

expressed similar negative views with regard to the possibility of selective heating in living tissues.

Coulter and Osborne<sup>55</sup> demonstrated by means of pelvic heating experiments a lack of specific heating for various wavelengths. From a clinical standpoint I have observed no obvious selective heating effects. The consensus would seem to have been well expressed in a recent report of the Council on Physical Therapy<sup>58</sup> that, so far as competent investigators have been able to determine, there is no demonstrable selective thermal action in the living body.

*Thermopenetration*—With regard to penetration of heat during applications of short wave diathermy, marked differences of opinion have been noted. Schliephake<sup>47</sup> claimed that heating took place "from within outward" and that there was superior penetration with short wave diathermy. Bierman and Schwarzschild<sup>30</sup> claimed more uniform heating with higher than with lower frequencies. Patzold<sup>59</sup> believed that, with the uniform field distribution made possible by higher frequency and wider air gaps between electrodes and bodily surface, the temperature in the interior of the body and at the surface could be "of equal magnitude." Reiter<sup>60</sup> said that, with short wave diathermy, deep heating could be produced as a result of dielectrical losses deep within the body. Pratt and Sheard<sup>61</sup> concluded that the relationship of deep heat to surface heat was dependent on the distance at which the condenser plates were placed with respect to the surface. With more air space, deep heat was greater than superficial heat, whereas with less air space the reverse was true.

Mortimer and Osborne,<sup>56</sup> however, reported a thermal gradient from hot skin to less hot tissues within and concluded that there was no evidence that short wave diathermy possessed more uniform penetration of heat into the body than conventional diathermy. Kobak<sup>62</sup> felt that the differences between the observations of Pratt and Sheard and those of Mortimer and Osborne were due to differences in the methods of spacing between electrodes and the body surface.

While laboratory studies have elicited conflicting views, many clinical observations have indicated failure of deep heating with short wave diathermy. Thus, Schultze-Rhonhof and Rech<sup>63</sup> applied short wave diathermy electrodes to the pelvis, front and back, and concluded that there was no pronounced increase of internal temperature, as measured by alcohol thermometers, although a noticeable heating of the skin was observed. Coulter and Osborne<sup>55</sup> confirmed these observations, concluding that the surface tissues could not tolerate the excessive heating necessary to produce adequate deep heating. Cumberbatch<sup>36</sup> also reported that he could not heat the interior of the pelvis with external applications of short wave diathermy. I have found, however, that, in conjunction with fever therapy, it is possible to raise the internal temperatures of the pelvis several degrees by applying short wave diathermy with a bare metal vaginal electrode, as described by Horowitz and his co-workers.<sup>64</sup>

Eidinow<sup>56</sup> said that the greatest heating appeared to be centered in the fatty tissues and Chaffee<sup>29</sup> wrote that, while the so-called cutaneous effect was negligible when the body was the conductor nevertheless it was fairly well established that the surface of the body was more intensely heated than the interior.

My clinical observations show very little difference between the heating effects of conventional and of short wave diathermy.

The consensus would seem to be that for various physical reasons short wave diathermy should produce more uniform and deeper heat penetration than conventional diathermy. But for reasons which at present must be purely a matter of conjecture, many clinical observations have not confirmed this opinion.

**Wavelengths**—Various observers are in marked disagreement concerning the possibility of the production of diverse effects by different wavelengths between 3 and 30 meters. For example, McLennan<sup>50</sup> thought that, by choice of wavelength, heating of portions of the body having a certain conductivity might be favored. Schliephake<sup>18</sup> claimed that "unpleasant sensations" were produced sooner by 3 meter waves than by 7 meter waves, and he said also<sup>64</sup> that staphylococci were killed in the condenser field at different rates of speed according to wavelength. He also affirmed<sup>53</sup> that if with a wave of 4 meters the muscle was heated more and the fat less, with another wavelength the fat might be heated more than the muscle. Liebesny<sup>65</sup> said that with 4 meter waves he had cured actinomycosis in two cases in which the condition had been unaffected by waves of 15 meters. Reiter<sup>66</sup> believed there existed for every tissue an optimal wavelength, and he also said<sup>60</sup> that, with equal primary energies, one ought to get the most heat with the shortest wavelength. Bierman and Schwarzschild<sup>20</sup> contended that it was possible by proper selection of frequency (or wavelength) to heat one type of tissue at the expense of another, and that a frequency of 30,000,000 cycles per second heated lung tissue most, whereas a frequency of 75,000,000 cycles heated cartilaginous tissue most.<sup>67</sup> Breitweiser<sup>62</sup> said that selective effects were more pronounced with ultrashort waves. Kobak<sup>68</sup> was of the opinion that the best clinical results were obtained with apparatus of high wattage output in an ultrashort wave range. Gale<sup>69</sup> believed the question of optimal wavelength was not settled yet.

On the other hand, Nagelschmidt<sup>8</sup> said that there was never a sudden change of the effects of adjacent wavelengths within the entire range of diathermy, and further that,<sup>70</sup> clinically, there was no tangible demonstration of specificity of wavelengths in the living body. Turrell<sup>41</sup> doubted that certain wavelengths had selective properties for certain cells. Speeding<sup>27</sup> felt that there was no special value in very short wavelengths (6 meters or less). Wolf<sup>44</sup> said that opinion tended more and more to the conclusion that no specific effect is produced by any particular wavelength. Furthermore, Kovacs<sup>71</sup> averred that claims for specific effects by certain wavelengths had not found general corroboration. Chaffee<sup>29</sup> said that he was sure of his position in stating that no specific effect of any particular frequency had been proved to exist, nor was this to be expected, since the highest frequencies used were far too low to elicit any specific molecular activities.

While most of the foregoing observations have been based largely on conjecture, certain definite studies have been made by actual experiment. Thus Hill<sup>11</sup> in experiments on rats found that there were no differences in certain effects on experimental tumors whether the wavelengths employed were 3-4 meters, 6 meters

or longer. Mortimer and Beard<sup>72</sup> tested by actual experiment fourteen short wave diathermy machines, of wavelengths between 6 and 25 meters, and they concluded that, for heating purposes, there appeared to be no advantage of any one wavelength over another. Coulter and Osborne<sup>73</sup> found no significant differences in heating effects of various wavelengths (9, 15, 16.4 and 24 meters) in pelvic heating experiments. Horowitz and his co-workers<sup>63</sup> used nine different machines with wavelengths varying from 6 to 18 meters in pelvic heating experiments and agreed with the results of Coulter and Osborne.<sup>55</sup> Coulter and Carter<sup>74</sup> reported that studies on the heating of live human muscle and fat revealed no significant heating differences with the use of various wavelengths (6, 12, 18 and 24 meters). Coulter and Osborne,<sup>75</sup> in additional studies on the heating of live human muscle and fat, with diverse wavelengths of short wave diathermy (6, 12, 18 and 24 meters) observed no noteworthy differences in the amount of heating. It is noted however, that an editorial in the *Archives of Physical Therapy* expressed the opinion that the studies of Coulter and Osborne<sup>75</sup> indicated, despite their conclusions, that shorter wavelengths produced greater heating in the muscular than in the subcutaneous regions.

In my opinion these differences are so slight that I agree with the authors that they are negligible. My own clinical observations lead me to agree with Kobak<sup>68</sup> that an apparatus of high wattage output gives the best clinical results, however, I have seen no particular advantage in the use of the shorter wavelengths. The consensus (particularly of those who have performed careful experiments) would seem to be that the effect of various wavelengths between 3 and 30 meters is approximately the same.

#### BACTERIOLOGIC EFFECTS

Certain specific actions on bacteria and their toxins, both *in vitro* and *in vivo*, have been claimed. Szymanowski and Hicks<sup>76</sup> performed experiments on the effect of short waves on bacterial toxins. They mentioned that the effects might be due to "a specific local heating of the toxic molecular complex" but concluded that "ultra high-frequency radiation under the conditions described is capable of producing definite attenuation of the three major bacterial toxins, diphtheria, tetanus and botulinus, in raw broth filtrates. This effect is obtained without the development in the toxin of temperatures that would themselves affect the potency of the toxin." In later studies, however, Hicks and Szymanowski<sup>77</sup> changed their opinion and stated after further experimentation that "the results tend to establish that ultra high frequency radiation, at least under many conditions, is biologically active only through the heat induced" and that there was "no evidence, so far, to show that there is any factor of significance in exposure to high frequency fields except that of heat."

Schliephake's<sup>61</sup> claim of having killed staphylococci at varying speeds with different wavelengths has been mentioned, as has Liebesny's<sup>66</sup> claim for a specific action of a 4 meter wavelength in actinomycosis. Compere<sup>78</sup> mentioned that short wave diathermy had been claimed to have a specific germicidal action. Haase and Schliephake<sup>79</sup> observed a more rapid lethal action on staphylococci and tubercle bacilli exposed to ultra short waves as compared with controls heated in water baths to the same temperatures. Hasche and Leung<sup>80</sup> however exposed cultures of staphylococci and streptococci in distilled water saline solution,

67. The writers have recently informed me that the data were taken from a tabulation which appeared in *Grundriss der Kurzwellen therapie* by Holzer and Wenzberg. They believe that in the light of present knowledge the data are rather questionable since it has subsequently been shown (Ostwald and Pajewsky) that measurements made on free tissues at body temperature show large deviations from the previously accepted value. Bierman and Schwarzschild believed that heating was more uniform with short wave diathermy than with conventional diathermy and in the recent communication they stated that they did not wish to be classified as "selective heating enthusiasts."



bouillon and milk and on agar-plates, to ultra short waves at different frequencies and intensities for periods up to eight and a half hours and they observed no inhibitory or destructive effect on the bacteria. Eidinow<sup>22</sup> said that it was untrue that short wave diathermy had any specific action on bacteria. He had made previous studies<sup>23</sup> in which sterile gauze, soaked in a broth emulsion of various organisms, was inserted under the skin of normal rats, which were then exposed to ultra short waves of 4.5 and 3.4 meter wavelengths. Eidinow was unable to demonstrate any bactericidal action whatever with these wavelengths, provided the tissues were effectively cooled. He felt that his work confirmed the observations of Christie and Loomis<sup>13</sup>. Mortimer and Osborne<sup>56</sup> believed that claims for specific bactericidal action of high frequency currents might be more rationally explained on the basis of "point heating" which raised the temperature of the micro-organisms above their thermal death point without a corresponding elevation in the temperature of the medium. They believed that it remained to be proved whether such test tube results could be obtained in the case of infections in the human body.

Ecker and O'Neal<sup>51</sup> attributed the effect on *Bacillus typhosus* agglutinin and complement, in experimental studies on animals exposed to ultra high frequency currents, entirely to the hyperpyrexia which was produced.

Schmidt<sup>42</sup> observed that there is too great a tendency to look for specific effects, such as on bacteria, for example, the fact being ignored that increased circulation may have a beneficial effect.

It would seem to be the consensus that neither in vitro nor in vivo are there specific bactericidal effects other than those attributable to heat.

#### PHYSIOLOGIC EFFECTS

It is of course generally accepted that short wave diathermy produces certain physiologic effects which are due to the local or systemic heating which may be produced, but a considerable controversy has arisen as to whether it produces specific effects other than heating.

With regard to the physiologic effects due to heat, Knudson and Schaible<sup>5</sup> concluded that daily systemic heating of rats to 40.5 C with short wave diathermy did not retard their growth, appreciably affect their reproductive organs, or produce any pathologic lesions. In another experimental study on dogs, Knudson and Schaible<sup>53</sup> found after long elevations of temperature that no physiologic changes were produced other than those attributable to the fever. Bierman<sup>11</sup> said that the effect of the application of radiotherapy could be explained on the basis of heat production. Boak and her co-workers<sup>54</sup> concluded that repeated elevation by short wave diathermy of the bodily temperature of rabbits failed to injure their growth or to interfere with mating, fertilization or the development of young in utero. Henle and Phelps<sup>55</sup> reported that exposure to short radio waves produced no effect on the elasticity of aortic rings, and in another study they<sup>56</sup> concluded that radiotherapy applied to perfused cats' hearts did not modify the natural tendency toward an increasingly hypodynamic state. Eidinow<sup>44</sup> concluded that the action of ultra short waves was to produce coagulative necrosis and extreme vasodilatation, which was similar to the effect produced by conventional diathermy. There is practically no confirmation of the claims of Weissenberg<sup>6</sup> that his so called low intensity treat-

ments produce definite physiologic effects,<sup>58</sup> nor is there any reason to believe that treatments of five minutes or less, as advocated by Stiebock,<sup>59</sup> have any marked action other than a psychic one.

Schliephake<sup>60</sup> claimed that, when short wave therapy was used, one was not dealing with heating effects in the ordinary sense, as was still being asserted by some authors, but with a heat which often deviated from that of "thermotherapy and diathermy." No concrete proof of these deviations however, has been forthcoming. Kobak<sup>61</sup> said that, although first interpreted as possessing occult biologic properties characterized as specific in nature increasing experience has proved that the primary action of short waves was essentially that of heat due to displacement and conduction phenomena. Kobak apparently does not agree with Schliephake's claim that there are "specific effects on colloids," and rightly so since this claim has been fairly well refuted.

The claims of Schliephake, Reiter and a few others regarding specific effects other than heating are as follows:

Schliephake<sup>62</sup> believed that, in human beings who remained for a long time in the field, there were specific disturbances of the nervous system such as a "desire to sleep," a "high degree of enervation and prostration," "intensive headaches," and "digestive disturbances." He further believed<sup>63</sup> that the dividing membranes between the single cells and colloids were "in some way influenced" by short waves and said that this was "a definite effect only produced by the short waves and quite independent of heat." Later he<sup>63</sup> contended that there was "point heating in colloiddally dispersed substances in the condenser field." Reiter<sup>64</sup> asserted that a 3.4 meter wavelength had specific destructive effects on Jensen rat sarcoma in vivo. He<sup>66</sup> claimed also one "obviously specific action" of ultra short waves, namely "an inflammatory effect." Reiter<sup>66</sup> believed, in addition, that ultra short waves showed a great number of biologic and therapeutic effects which could "not be looked upon as being heat effects alone." Compere<sup>78</sup> mentioned an "analgesic effect" and a "trophic action." Wilson<sup>77</sup> claimed a "peculiar effectiveness" in infections belonging "only to the ultra short waves from 6 to 3 meters." Jellinek<sup>92</sup> asserted that new-born mice, placed in a weak, short wave field, seemed instantaneously paralyzed, indicating an effect other than heating.

Bauwens<sup>90</sup> said that short waves primarily made "tissues react against antigens" and secondarily caused local pyrexia. Weissenberg<sup>7</sup> said that there were "certain specific electrical effects" which had "a sedative influence in a pathological hypertonus of the autonomic nervous system."

Pätzold and Bierman were noncommittal concerning specific effects other than heating. Pätzold<sup>93</sup> said that the investigations concerning so-called specific effects were too much in flux to necessitate consideration at this early date. Bierman<sup>97</sup> believed that the question was still "a moot one."

Because of the claims for specific effects the British Empire Cancer Campaign became interested, and Canti, honorary secretary to the scientific committees for this campaign observed: "Effects are claimed in a vast number of diseases. If this be true it would seem that a new and important physical agent is at our disposal." He then announced that the campaign had decided to enable Reiter to continue the investigations which led him to claim to have

obtained "beneficial effects on both carcinoma and sarcoma in animals" Canti further announced that the campaign had instituted a separate investigation by Professor Curtis and Dr Dickens

It is interesting to note that the last named seasoned investigators presented the most definite refutation of the claims of both Reiter and Schliephake After extensive investigations, Curtis, Dickens and Evans<sup>99</sup> questioned any "specific" actions of short waves which were not primarily thermal in action They said "So far as is known at present from physical and chemical evidence, radiation of these wavelengths (3-15 meters) is not directly convertible into atomic or molecular energy" They traced to their sources the various references of those claiming specific actions and attempted, where possible, to repeat the experiments in question In checking Reiter's<sup>94</sup> studies, they found that he had taken inadequate precautions against heating, that is, "in order to keep tissue contained in a suitable vessel at 40 C it had to be immersed in a bath containing liquid paraffin at 6 C Under these conditions no effect on metabolism was observed when the specimen was subjected to intense irradiation on a wavelength of 3.4 m" They were unable to confirm the claims of Schliephake and Compere that short waves produced lowering of surface tension in certain colloidal solutions, including blood and serum They found that the stalagmometric method of measurement of surface tension used by Schliephake and Compere was "entirely unsuitable" Using the more accurate and convenient torsion balance method, they were "unable to find any effect whatever on the surface tension of serum, although an effect of the magnitude reported by Schliephake would have been readily detected" They concluded "The variations of surface tension in the short wave field has been referred to in the literature as the 'Schliephake effect' but in our opinion, proof of its existence is entirely lacking"

Furthermore, Curtis and his co-workers refuted the work of Schliephake and Recknagel which claimed changes in the viscosity and stability of colloids other than those caused by a rise of temperature They said that only sixteen lines were devoted to a description of these fundamental phenomena in Schliephake's book and that in reply to their request for fuller information it was learned that this "could not be given 'on personal grounds'" They called attention to the fact that Schliephake failed to mention in his book that Hicks and Szymanowski,<sup>100</sup> six months after their first paper was published, had withdrawn their earlier results on toxins<sup>101</sup> (used by Schliephake in corroborating his own work) and had reported that "repeating the work of Schliephake and Haase on staphylococci they were unable to establish any effect of the high frequency field" Curtis and his assistants also tried to duplicate Holzer and Weissenberg's<sup>102</sup> "specific actions," notably decolorization of the dye pimaric acid in a short wave field, "but without success," and said that in a personal communication Dr Holzer had stated that he had "since been unable to reproduce the effect" Furthermore they could not verify Esau's observation quoted by Pfomm that turpentine oil could be hardened by exposure to a short wave field, and they could not confirm the "mysterious effects on operators of short wave appliances reported by both Holzer and Schliephake They concluded that if specific effects other than heating exist, "it should be possible for the discoverers to describe at least one clear cut experiment which could be repeated by other workers In

the absence of such evidence we consider that the great mass of inconclusive observations which has been presented is a very insecure foundation for the rapidly growing belief in specific short wave therapy"

Other studies by Dickens and his co-workers<sup>100</sup> caused them to conclude that "the effects on metabolism described by Reiter were really due to heat and not to a 'specific action'" Hill<sup>102</sup> said that there was no effect from short waves other than heat Hill and Taylor<sup>101</sup> studied the behavior of a frog heart, cilia and nerve-muscle preparation exposed to a 3.4 meter wavelength and concluded it was exactly the same as when merely heated in Ringer's solution and that the biologic action of short waves was therefore due to heat Taylor<sup>102</sup> was unable to repeat Reiter's results successfully

Jacobsen and Hosoi<sup>103</sup> concluded that their own studies and those of Knudson and Schaible<sup>104</sup> revealed the usual picture of hyperthermia and that the effects were not due to any factor other than heat

Wetzel and Kiesselbach<sup>105</sup> studied the effect of 12 and 8 meter wavelengths on tadpoles kept cool by circulating water and observed no differences between treated and control tadpoles

Mortimer and Osborne<sup>106</sup> decided that the burden of proof still lay on those who claimed any biologic action of short wave currents other than heat Coulter and Osborne<sup>106</sup> came to the conclusion that heat alone was responsible for the therapeutic effects produced by short wave generators, Tenney<sup>107</sup> concluded that general exposures to short radio waves produced simply "a form of fever", Halphen and Auclair<sup>9</sup> believed the properties attributed to short waves had been explained as being "due solely to the production of heat", Gale<sup>108</sup> said that the effects of short wave therapy must "be assumed to be due to heat effects", Kovacs<sup>109</sup> said that the essential effect of short wave diathermy is heating and nothing else, Wolf<sup>104</sup> concluded that a specific action did not exist, that short waves exert their influence by the production of heat only and finally the Council on Physical Therapy<sup>107</sup> concluded that there were no demonstrable specific biologic actions and that, to date, the effects produced could be explained only on the basis of the generation of heat

My own clinical observations have never revealed any of the effects on the nervous system claimed by Schliephake, and exposure of one patient's hand to a 6 meter wavelength for eight hours daily for five days revealed none of the specific inflammatory reactions claimed by Reiter Repeated, long fever treatments by many workers have failed to reveal any such effects Jellinek's<sup>109</sup> claim that his experiment speaks "for the absence of heating" is controversial, since he has not explained his observation on any grounds

The consensus seems quite definitely to be that, in the light of present observations, no specific physiologic effects other than those attributable to heating have been proved Nevertheless the remote possibility of the existence of such effects cannot yet be denied

#### DISADVANTAGES

The two commonly mentioned disadvantages of short wave diathermy, as compared with other methods of applying heat, are the danger of burns and the difficulty of measuring dosage

**Burns**—Turrell<sup>110</sup> averred that skin burns might occur from short wave therapy, in fact he felt that far more care was required to avoid them than with

conventional diathermy. Wolf<sup>111</sup> on the other hand, thought burns of the skin less common than with conventional diathermy. Although I<sup>1</sup> previously reported that burns did occur with short wave diathermy and that, in the absence of actual burns, burning sensations were more common than with ordinary diathermy, I nevertheless agree with Wolf that actual burns are less common with short wave than with conventional diathermy. Kling<sup>112</sup> said that the assumption that the use of short wave therapy precluded burns and therefore simplified the technique was a dangerous fallacy. He reported six cases of second or third degree burns in which he said<sup>113</sup> healing took place with firm normal scars. Keri-Russell<sup>114</sup> had seen "two cases of burns" from short wave diathermy. Speeding<sup>2</sup> mentioned that occasionally in erythema or even blister formation would take place during short wave treatments. Schliephake<sup>3</sup> however, contended that in fifty thousand treatments during the course of six years he had seen burns only twice, and that these were insignificant and healed spontaneously within a few days. Egan<sup>115</sup> reported that burns do occur if too strong dosage is used or if perspiration is allowed to remain on the skin, he believed that they were a minor factor in treatment. Kovacs<sup>1</sup> thought that because less heating effect on the skin occurred than with conventional diathermy there was, generally speaking, less danger of burns in short wave diathermy. The Council on Physical Therapy<sup>4</sup> reported that burns might occur with any method of applying short wave diathermy.

Another disadvantage which I have previously mentioned<sup>1</sup> is that cords or electrodes may burn, melt or char and that metallic furniture (bed springs particularly) may be unduly heated in the short wave diathermy held and sheets or other coverings may become ignited.

The consensus seems to be that although burns may undoubtedly occur from short wave diathermy, they are less likely to occur than in ordinary diathermy treatments.

**Dosage.**—With regard to the difficulty in measuring dosage, Kovacs<sup>1</sup> said that the crude method of measuring it was the greatest present drawback of short wave therapy. Schliephake<sup>116</sup> stated that methods of measuring dosage were so complicated that they were useless in medical practice. Although for several years physicians have expressed the hope that an accurate method of measuring dosage might be perfected<sup>1</sup> to date no method of measurement other than through the patient's own sensations has been developed.

#### ADVANTAGES

Certain advantages are claimed, as follows: more uniform or homogeneous heating than with other thermal methods (Bierman<sup>117</sup>), more intense local heat which is less hazardous (Davis<sup>22</sup>), deeper penetration and greater facility of application (Hollender<sup>44</sup>), the fact that only the middle, more or less straight-lined, part of the field might be used producing in almost homogeneous heating, the fact that irregularly formed bodily surfaces (open wounds and so on) might be treated with effective doses (Pitzold<sup>1</sup>), possibility of introducing air spacing so that only the axial portion of the field was used in therapy (Wilson<sup>118</sup>), greater efficacy of short wave treatments than of conventional diathermy in heating deeply situated parts in the thorax or abdomen (Cumberbatch<sup>1</sup>) and production of a deeper heating

effect, and avoidance of high field concentration around the electrodes with short wave diathermy (Taylor<sup>119</sup>). I have been particularly impressed with the facility (not the simplicity) of application of short wave diathermy.

The consensus would seem to be that short wave diathermy produces more homogeneous, deeper heating of bodily tissues than other thermal methods, and that there is greater facility of application than with conventional diathermy.

#### THE USE OF SHORT WAVE DIATHERMY IN THE TREATMENT OF SUPPURATIVE PROCESSES

Out of the hodgepodge of poor presentations, consisting of many small series of uncontrolled cases, one claim has been constantly presented, that is, that short wave diathermy is particularly indicated in the treatment of suppurative processes.

Kobak<sup>120</sup> recently said that scientifically trained men allowed their first successful laboratory experiments "to overpower their conservative training and critical judgment" and that studies on short wave diathermy "must be presented in that objective and critical manner which recognizes verities and challenges errors." In no phase of the past studies on short wave diathermy has this "critical judgment" seemed more lacking and "objective" proof less evident than in the observations on its use in the treatment of suppurative processes. So far as can be ascertained not one of the men who so enthusiastically advocated short wave diathermy for suppurative and infectious lesions has presented any systematic, controlled or comparative studies to prove his contentions. No consideration seems to have been given the fact that most superficial suppurative processes (owing to natural bodily mechanisms) go on to prompt regression without any treatment. Mere listing of claims for large numbers of successes without critical proof of these successes is unconvincing.

Schliephake<sup>116</sup> has been one of those who while repeatedly having claimed remarkable successes in treating suppurations has presented practically no controlled studies. Thus starting with claims for "extraordinarily quick cure of suppuration" in "about a hundred cases"<sup>119</sup> (in 1931), he progressed to the point of claiming (in 1936) to have cured "hundreds of furuncles" in "an average of four and a half days" and large carbuncles in from "ten to fourteen days." He also stated "I have treated forty patients with severe pleural empyema, lung abscesses and suppurative pneumonia with and without gangrene—all of these patients have been cured." He stated that "a furuncle heals occasionally also by hot compresses, but in the short wave field it becomes cured in a much shorter time." (He presented no comparative studies to prove this contention.)

Wilson<sup>118</sup> also claimed a peculiar effectiveness of short waves in the treatment of infections but presented no comparative studies. Wolf<sup>111</sup> concluded that short waves have a marked influence on acute and subacute inflammatory processes but he likewise presented no confirming data. Lidinow,<sup>4</sup> although he found no specific action of short waves on bacteria or tissue cells, suggested that the deeper heating might explain why these waves were of benefit in acute and chronic pyogenic infections. Kobak<sup>120</sup> formerly expressed the opinion that short wave diathermy had particularly demonstrated its therapeutic value in pyogenic infections. Among those who have reported success in the

trolled studies which led them to believe that short wave diathermy was effective in suppurative lesions may be mentioned Taylor,<sup>120</sup> Barry<sup>121</sup> and Schmidt.<sup>42</sup> Kling<sup>104</sup> reviewed the work of twelve authors, and in 695 cases of "infectious conditions" cure or improvement was reported in 80 per cent. (Again no controlled studies were reported, and one wonders what percentage would have improved without treatment.)

The most convincing claims concerning the value of short waves in the treatment of suppurative processes came from Egan,<sup>122</sup> who gave 7,700 treatments to 1,030 patients with pyogenic infections in various bodily areas and concluded that it was of "distinct value in localizing infectious lesions." It has long been known that heat externally applied has these effects and, unfortunately, Egan, despite the excellence of his presentation also has failed to make any definite comparative studies. Egan<sup>115</sup> mentioned that "either ultra short wave therapy is not diathermy or else the contraindications to diathermy are ill founded" and that he had been "unable to find the name of the scientist" who said that conventional diathermy was contraindicated in acute inflammatory lesions.

It is probable that this contraindication to conventional diathermy was originally formulated on a purely theoretical basis and that it has been handed down from textbook to textbook without any actual tests to prove the verity of the statement. Kobak<sup>68</sup> stated that it was "generally known that diathermy of the older type" was contraindicated "in the presence of suppuration." I contend that it has been merely accepted and is not "known." As a matter of fact, physicians have completely ignored this particular alleged contraindication and have treated acute pelvic inflammations with vaginal diathermy with considerable success—making this the single exception to the rule. Cumberbatch<sup>36</sup> has made a comparative study and has reached the expected conclusion. He wrote "In the endeavor to ascertain whether diathermy is unsafe in the treatment of acute or purulent inflammation I have treated some cases by the short wave method and others by diathermy. Sixty-two cases of carbuncle have been treated. In both forms of treatment there was rapid relief of pain, quick drainage followed and the sloughs separated leaving healthy granulating surfaces. The effects of each form of treatment were indistinguishable and equally quick." Although Cumberbatch's studies would seem to have reached the crux of the entire problem, they will of course need confirmation. Kovacs<sup>21</sup> pointed out that forms of mild heating other than short wave diathermy "when applied efficiently produce similar resolving and sedative effects."

Hollender<sup>44</sup> said "We are led to assume from the reports of European workers that surgery is frequently obviated in acute infectious processes but such claims have not been borne out by the experience of workers in this country."

Schliephake's<sup>90</sup> claim that short wave diathermy was remarkably efficacious in the treatment of pulmonary infections, which he stated had been confirmed by Liebesny,<sup>69</sup> was not supported by Cumberbatch,<sup>36</sup> who stated that in one case of empyema with persistent discharging sinus "both diathermic and short wave treatment were unsuccessful." I also attempted to confirm Schliephake's claims and exactly duplicate his technique, as described, using the same type of apparatus and electrodes. Daily treatments for over a month elicited not the slightest change in this particular case.

Further studies are undoubtedly necessary in order to confirm or refute Schliephake's claims. Nevertheless, whereas he stated that all his patients were "cured," at least two failures by other observers can now be noted.

The consensus would seem to be (at the present moment) that short wave diathermy is particularly indicated in the treatment of suppurative lesions, however, insufficient comparative studies have been presented to determine whether short wave diathermy is more effective than other simpler forms of mild heating.

#### SUMMARY AND CONCLUSIONS

Short wave diathermy has become the accepted term, at least in the United States, for treatment with short radio waves of wavelengths between 3 and 30 meters. Most observers prefer a vacuum tube apparatus of high wattage output for the production of such radiation, although spark gap apparatus has been used effectively by some workers. Devices of low energy output would seem to have no effect other than a psychologic one.

While there appears to be no great difference between the effects produced by conventional and short wave diathermy, short wave diathermy seems to produce deeper, more uniform heating and is more readily applied, although dosage control is more difficult than with conventional diathermy.

So far as competent investigators have been able to determine, there is no demonstrable selective thermal action in the living body. For various physical reasons, short wave diathermy should produce more uniform and deeper heat penetration than conventional diathermy, but for reasons which at present must be purely a matter of conjecture many clinical observations have not confirmed this opinion.

The consensus (particularly of those who have performed careful experiments) would seem to be that the effect of various wavelengths between 3 and 30 meters is approximately the same. There are apparently no specific bactericidal effects other than those attributable to heat either *in vitro* or *in vivo*. There is no reason to believe that treatments of five minutes or less have any marked action other than a psychic one.

In light of present observations, no specific physiologic effects other than those attributable to heating have been proved to exist.

Although burns may occur from short wave diathermy, they are less likely to be found than in conventional diathermy. Lack of a satisfactory method of determining dosage is a definite handicap in administering short wave diathermy.

The chief advantages claimed for short wave diathermy in comparison with other thermal measures are that its action is more homogeneous, there is deeper heating of bodily tissues and it affords greater facility of application. It is claimed that short wave diathermy is particularly indicated in the treatment of suppurative lesions, however, insufficient comparative studies have been presented to determine whether or not it is more effective than other simpler forms of mild heating.

The indications for the use of short wave diathermy should be considered, in light of present knowledge, to be the same as those for the use of conventional diathermy.<sup>123</sup> Further studies may prove that other indications do exist.

<sup>123</sup> For list of indications see Coulter J. S. *Medical Diathermy* J. A. M. A. 106: 209-214 (Jan. 18) 1936.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 16, 1938

## DR. JAMES H. MEANS ADDRESSES THE COLLEGE OF PHYSICIANS

In his presidential address to the American College of Physicians at its annual session in New York last week, Dr. James H. Means was reported by the New York Times to have said:

The behavior of the American Medical Association is political. It is partisan behavior. It champions a cause. At the present time the cause is something close to stand-patism.

Later in his address he said:

We hear a great deal about the sacrosanct doctor-patient relationship. No third party can be allowed to come between the two involved. This has been used as an argument against all attempts to improve the efficiency of medical service through group practice. When it is suggested that a disinterested outside person could with greater equity than the doctor determine what might be a proper fee for services rendered in any given case, there are storms of protest from the conservative wing of the profession. Yet a philosopher might recognize such an arrangement as an ideal one, and, as a matter of fact, it is actually working successfully in more than one place, to the satisfaction of both doctors and patients.

I submit that having a third party determine the size of, and even collect the fee from the patient for the doctor is not only not an intrusion into the holy doctor-patient relationship but actually increases the likelihood of the patient's receiving from the doctor the best and wisest treatment the doctor is capable of giving.

The statement by Dr. Means was heralded by the New York Times in headlines on page 1 as a revolt against the American Medical Association. This aroused a storm of protest among the members of the American College of Physicians present at the session. More than 300 members signed a statement, of which the following is a quotation:

Unfortunately a situation has arisen in which the impression has been given in the Public Press that the American College of Physicians is in revolt against the organized medical profession as represented by the American Medical Association.

Inasmuch as no such action has ever been taken by the American College of Physicians and inasmuch as there is reason to believe that the impression created does not correctly reflect the attitude or the membership of the American College of Physicians, we the undersigned fellows of the College respectfully petition the Board of Regents immediately take action to correct this impression publicly.

Dr. Means himself signed this document and issued a personal statement at the banquet on the night following in which he said:

I am not advocating a revolt and nothing of that sort was mentioned in the speech which I made last night.

This statement was duly buried by the New York Times on page 11, following a scientific discussion dealing with the history of appendicitis. The Board of Regents of the College of Physicians unanimously adopted the following statement before its adjournment:

Unfortunately an impression has been created that the American College of Physicians is in revolt against the organized medical profession as represented by the American Medical Association. This does not correctly reflect the statement of Dr. James H. Means in his presidential address. Nor does the impression represent my position taken by the membership, since there has been no official consideration by the College of the questions involved.

This statement was duly buried by the New York Times on page 19 at the end of a consideration which it headed "Victims of Scum Found Among Rich." Altogether the incident may have a salutary effect on the medical profession in establishing with some certainty those to whom it must look for guidance in protecting its established standards and ideals.

## DEATHS FROM ENSOL-REX CANCER TREATMENT AND FOOD AND DRUG LEGISLATION

Authorities representing both the Biologic Division of the National Institute of Health and the Food and Drug Administration of the Department of Agriculture are agreed that the deaths in Orlando, Fla., discussed in THE JOURNAL last week, were due to Rex, series 152, prepared by the Biochemical Research Foundation of the Franklin Institute of Philadelphia. A portion of this batch, bearing the date of March 7, showed the presence of tetanus toxin; the deaths were due to the preformed toxin developed in the course of manufacture of the product. The two government agencies absolved both the Hendry Connell Research Foundation in Canada and the Franklin Institute of Philadelphia from intentional guilt in the preparation of the serum. Neither Ensol nor Rex had been licensed for interstate sale but were sent broadcast without charge and with a view to obtaining experimental therapeutic evidence. According to statements in Orlando newspapers, an official spokesman for the Food and Drug Administration said:

There is no law to prohibit shipment of dangerous medicines as demonstrated in the famed chair case last fall. At that time we recommended that Congress pass laws to cover such situations but to date our recommendations have not been acted upon.

Readers will recall the series of articles in THE JOURNAL concerning the Litvin of Sulfonamide Mesengill episode in which more than seventy-six persons died following the administration of the chair. At that time THE JOURNAL said:

A physician is not compelled to follow the United States Pharmacopoeia, the National Formulary or the Council on Pharmacy and Chemistry in the prescribing of drugs. He can prescribe anything that he thinks is best for his patient.



for his patient. Indeed, the Council on Pharmacy and Chemistry encourages scientific experimentation with new remedies, provided these experiments are carried out with suitable controls and with adequate facilities for therapeutic investigation. In the usual conditions of practice, however, it is far safer—as this tragedy again emphasizes—to limit prescriptions of nonofficial products to those accepted by the Council on Pharmacy and Chemistry and to use them as described in New and Non-official Remedies.

Readers of THE JOURNAL will remember that at this very moment people in the United States are being offered other treatments for cancer involving injection into the human body of materials of unknown composition or otherwise uncontrolled and unestablished. The products developed by William Koch in Detroit, by Coffey and Humber in California, and more recently by Beaumont Cornell in Fort Wayne, Ind., are in this category. Perhaps the National Health Institute should concern itself, if possible, under the law, with the use and distribution of these materials. Experiments on animals with the so-called Cornell cure for cancer developed in Fort Wayne resulted in complete failure and the available clinical evidence is hardly worthy the name. As was predicted in discussing the Hendry Connell cancer treatment, the use of such methods will inevitably bring grief to those who are concerned with their employment.

How many additional deaths will be necessary before Congress gives the people of the United States real protection against hastily concocted, secret remedies? How many more human guinea pigs are to be sacrificed by exploiters of unestablished and virtually untested drugs, serums and cosmetics? For five years food and drug bills have been before one or the other branch of Congress. At each hearing, effective provisions for consumer protection in these bills have been deleted in the interest of exploiters. Bill after bill has been emasculated as it came to the Congress for consideration. In their care and concern for the health needs of the people, why do our legislators so persistently evade this issue?

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#### OBITUARIES OF PHYSICIANS PUBLISHED IN 1937

The number of obituaries of physicians published in THE JOURNAL during 1937 was 3,398, including 3,277 of the United States, as compared with 3,475 in 1936, also 121 names of Canadian physicians. Three died in China, 2 each in India and Honduras and 1 each in Alaska, British West Indies, the Canal Zone, England, Puerto Rico and South America. The obituaries of 113 women physicians were published, as compared with 103 in 1936. The number of graduates of medical schools in the United States for the fiscal year ended June 30, 1937, was 5,377. Deducting the number of physicians whose obituaries were published, there was a net addition to the profession for the year of 2,100, not including physicians coming from abroad.

*Ages*—The average age at death of those classified as of the United States was 65.4, as compared with 64.5 in 1936. Twenty-four physicians died between

the ages of 25 and 29, fifty between 30 and 34, 112 between 35 and 39, forty-one between 40 and 44 and four between 45 and 49, two were more than 100. In two cases the age was not reported.

*Causes of Death*—Heart disease was again the leading cause of death, as it has been for many years. Some contributory causes are included in THE JOURNAL'S tabulation, as they have been in former years. For example, when a report of the cause of death gave chronic nephritis and heart disease, it was published as such in THE JOURNAL and was recorded on the statistical charts under both diseases. Thus heart disease was reported as a cause of death in 1,360 cases. Endocarditis or myocarditis was specified in 339 cases, coronary thrombosis in 289, angina pectoris in 98 and pericarditis in 2. Other diseases of the heart caused 632 deaths. Pneumonia was the second most frequent cause, with 392 deaths, of which 102 were specified as bronchopneumonia. Arteriosclerosis was the third most frequent cause, with 382 deaths, other diseases of the arteries caused 4. Fourth on the list was cerebral hemorrhage, with 353 deaths, 20 additional deaths were reported as due to paralysis. Of 311 deaths reported as due to cancer, the stomach and liver were reported affected in 59 cases, the intestine in 53, the prostate in 42, the female genital organs in 2 and the skin in 1, in 154 cases the part affected was not specified. Nephritis was reported as the cause of 172 deaths. The number of cases in which hypertension was reported was 91, embolism and thrombosis exclusive of coronary thrombosis 83, diabetes mellitus 73, uremia 63, other diseases of the genito-urinary system 74, diseases of the prostate other than cancer 58, tuberculosis 56, influenza 43, cirrhosis of the liver 35, senility 31, septicemia 21, appendicitis and ulcer of the stomach and duodenum 19 each, other diseases of the digestive system 15, intestinal obstruction 17, peritonitis 16, leukemia 15, bronchitis, meningitis and brain tumor 14 each, other tumors 10, paralysis agitans and diseases of the liver 13 each, aneurysm, biliary calculi and cholecystitis 7 each, arthritis, asthma, hernia and Hodgkin's disease 6 each, cellulitis, encephalitis, erysipelas and pernicious anemia 5 each, cerebral sclerosis, otitis media, pulmonary infarct and streptococcal infection 4 each, Addison's disease, carbuncle, empyema, hyperthyroidism, malaria, multiple sclerosis, phlebitis, sinusitis, streptococcal sore throat and Streptococcus viridans infections 3 each, agranulocytic angina, amebic dysentery, intestinal diverticulitis, Ludwig's angina, ileus, pellagra, scarlet fever and thromboangitis obliterans 2 each. Other diseases reported as causing one death each were acromegaly, aplastic anemia, bacillary dysentery, brain abscess, dementia paralytica, diphtheria, diverticulum of the esophagus, ectopic pregnancy, encephalomalacia, hemochromatosis, hiccup, intestinal rupture, Kummel's disease, lipoid dystrophy, mediastinitis, multiple myeloma, myasthenia gravis, osteoarthritis, osteitis deformans,

parotitis, periarteritis nodosa, poliomyelitis, polyneuritis, progressive muscular atrophy, staphylococcal infection, substernal goiter, syringomyelia, thrombocytopenic purpura, typhoid fever, typhus, pyloric ulcer and undulant fever

**Accidental Deaths**—One hundred and fifty-one physicians died as the result of accidents in 1937, compared with 182 in the previous year. Automobile accidents accounted for 71 deaths, falls 37, drowning 5, shooting, airplane accidents, carbon monoxide poisoning from automobiles and overdoses of medicine 4 each, x-ray burns and electricity 2 each, burns, explosion, gas, poison and street car accident 1 each. In twelve cases unexplained fractures were given as causes of death. One physician died of injuries and exposure after his car stalled in a snowstorm while en route to attend a patient, one of strangulation by a lamp cord.

**Suicides and Homicides**—Suicide was the cause of 52 deaths published in 1937. Bullet wounds accounted for 25 of these deaths, poison 10, hanging 5, incised wounds 4, gas and overdoses of morphine 2 each, chloroform and jumping 1 each. In two cases the method was not reported, in addition twelve deaths from the following causes could not be classified because of insufficient information: overdose of morphine 4, barbitol poisoning 3, cyanide poisoning, carbon monoxide poisoning, illuminating gas, shooting and strychnine poisoning 1 each. There were 12 homicides.

**Civil Positions**—Among the decedents were 219 physicians who were or had been teachers in medical schools, 434 who had served in the World War, 17 veterans of the Civil War and 51 veterans of the Spanish-American War. One hundred and seventy-one were or had been health officers, 124 members of boards of education, 81 members of boards of health and 15 members of state boards of medical examiners. There were 52 who were or had been coroners, 38 members of state legislatures, 36 mayors, 32 pharmacists, 31 bank presidents, 24 members of city councils, 21 authors, 20 editors, 13 missionaries, 9 dentists, 8 police surgeons, 7 clergymen, 5 postmasters, 5 lawyers, 3 judges, 2 congressmen, 2 governors, 1 lieutenant governor and 1 justice of the peace. There were 13 members of the U. S. Army Medical Corps, 9 of the U. S. Navy Medical Corps, 16 of the U. S. Public Health Service, 4 of the Veterans' Administration and 7 of the Indian Medical Service.

**Association Officers**—Among those who died who were or had been officers of the American Medical Association were Dr. George H. Simmons, Editor and General Manager Emeritus, 2 vice presidents, ten section officers and 3 members of councils. Thirty-one members or former members of the House of Delegates died during the year. There were also 29 presidents or former presidents of state medical associations, 2 presidents-elect and 5 secretaries.

## Current Comment

### "LIBERTY" AND MEDICINE

For some weeks *Liberty*, published by Macfadden Publications, has been printing what purports to be an expose of medical practice by one Dr. "George B. Raymond." The story is called "Doctors Don't Tell." An editorial note intimates that this is a true story and that its purpose is to expose evils that are hidden by medical ethics. From all over the country have come protests from both nonmedical readers and physicians against the obvious lack of dependability in this material. If the statements are honest and susceptible of verification, the author should not hesitate to attach his name. Evidence now available indicates however, that the prefix "Dr." before the author's name should also have been in quotation marks. A telegram was sent to Macfadden Publications asking the editor to confirm the fact that the articles had been prepared by an individual who had failed to receive a medical degree and who had admitted deceit in the securing of a license. Apparently Macfadden Publications does not wish to answer this question. These statements indicate how little creditability can be given to or dependability placed on this alleged expose of medical ethics in *Liberty*.

### NATIONAL CANCER SURVEY

The United States Public Health Service announced<sup>1</sup> in September 1937 the appointment of a National Advisory Council to the National Cancer Institute. This council consists of six scientists, of whom three are doctors of medicine. At that time the erection of the cancer institute on a site in Bethesda, Md., was announced.<sup>2</sup> The institute is to be part of the National Institute of Health. By provisions of a House joint resolution of the Seventy-Fifth Congress, third session, the President of the United States proclaimed April of each year as "Cancer Control Month" and invited governors of the several states, territories and possessions to issue like proclamations.<sup>3</sup> The Woman's Field Army of the American Society for the Control of Cancer immediately became interested. As a result, cancer is the subject of much publicity during this month. The Minnesota house of representatives has urged that the Postmaster General permit a cancer slogan "Early Cancer is Curable" to be used on postal meters which are used by large organizations in lieu of affixed postal stamps.<sup>4</sup> In Maryland, cancer activities are sponsored by the cancer committee of the Medical and Chirurgical Faculty—the state medical society. In Passaic County, N. J.,<sup>5</sup> the county medical society has taken the leadership and so also has the medical society in Allegheny.

- 1 Government Services J. A. M. A. 109 1287 (Oct. 16) 1937
- 2 Government Services J. A. M. A. 109 843 (Sept. 11) 1937
- 3 Release entitled "Cancer Control Month" By the President of the United States of America. A Proclamation issued by the Woman's Field Army of the American Society for the Control of Cancer April 1938
- 4 Cancer Control Slogans Urged for Postal Meters Bull. Am. Soc. Control of Cancer July 1937 p. 9
- 5 Cancer Control Month Monthly Bull. Maryland State Department of Health April 1938 p. 9
- 6 Passaic County's Cancer Week Bull. Am. Soc. Control of Cancer February 1938 p. 8

County (Pittsburgh).<sup>7</sup> The United States Public Health Service, meantime, is conducting a survey by questionnaire, asking physicians to report information about cancer patients for whom they have cared during 1937. This information can be reported so that its reporting will not violate the confidential character of physician-patient relationships. Since cancer is not a reportable disease, cooperation from physicians in this survey will be purely voluntary. It may entail considerable labor and some inconvenience, but it is desirable and in the public interest. The first step toward conquest of any disease is a complete knowledge of its prevalence.

### PLAGUE TRANSMISSION

In the thirty years since the Indian Plague Commission demonstrated that fleas act as the transmitting agents of bubonic plague, the flea has been the only insect considered of importance in the natural dissemination of this disease. Observations of the course of several outbreaks have demonstrated<sup>1</sup> that the intensity of epidemics of plague is regulated not by the total number of fleas on the rats of the communities but rather by the species of fleas with which the rats are infested. In fact, as far as is known, plague epidemics have never occurred in communities where *Nosopsyllus fasciatus* has existed alone to the exclusion of *Xenopsylla cheopis*. Experimental investigations indicate that the latter flea is much more susceptible to plague infection than any of the other fleas tested. Sixty-six per cent of *cheopis* fleas fed on infected guinea pigs were found to harbor the plague bacillus in comparison with only 21 per cent of all the other fleas similarly exposed. The *cheopis* fleas when successfully infected had an average length of life of only sixteen days, and only one reached a maximum of thirty-six days. From the information now available regarding plague-infected fleas, it is possible to explain tentatively the reasons why plague outbreaks in different parts of the world have varied so much in character. In the warm localities where *cheopis* constitutes the only rat flea found, plague epizootics have frequently subsided quickly in accordance with expectation based on the experimental observation that plague infected *cheopis* fleas do not survive long and therefore do not remain infective for long periods. As the bites of these fleas may readily transmit plague, however, the human incidence of infection will usually be high where this variety is abundant. In the colder climates, where the *fasciatus* is present in a relatively high proportion, plague outbreaks may be prolonged but are generally associated with relatively few human cases. In conclusion, Eskey<sup>2</sup> points out that those fleas which are most susceptible to plague infection of the gastrointestinal tract and to the bacterial obstruction of the esophagus are the most dangerous vectors. As long as the flow of blood to the stomach is not blocked, infected fleas may bite on their hosts without danger of transmitting the disease, although some danger of infection exists from the virulent organisms present in the feces of all infected fleas.

<sup>7</sup> The United States Public Health Service Cancer Survey, Pittsburgh, N. Y. Bull. March 26, 1938.

<sup>1</sup> Eskey, C. R. Recent Developments in Our Knowledge of Plague Transmission. Pub. Health Rep. 53: 49 (Jan. 14) 1938.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ARIZONA

**State Medical Meeting at Tucson**—The forty-seventh annual meeting of the Arizona State Medical Association will be held in Tucson April 21-23 with headquarters at the Santa Rita Hotel and under the presidency of Dr. Harold W. Rice, Bisbee. Guest speakers who will address the scientific sessions are:

Dr. Franklin G. Ebaugh, Denver, Frequent Psychiatric Complications in General Practice  
Dr. John H. Woolsey, Woodland, Calif., Regional Ileitis  
Dr. Albert S. Crawford, Detroit, Craniocerebral Injuries  
Dr. J. C. Davis, Minneapolis, Effect of Drugs on Coronary Circulation  
Dr. Leslie M. Smith, El Paso, Texas, Lesions of the Oral Cavity  
Dr. Stuart W. Harrington, Rochester, Minn., Diaphragmatic Hernia

Dr. Morris Fishbein, Chicago, Editor of THE JOURNAL, will address a public meeting at the University of Arizona auditorium Thursday evening on "Medicine and the Changing Social Order." He will also address the house of delegates at an open meeting Friday afternoon on "Medicine and the National Policy," and the Woman's Auxiliary Thursday afternoon. The other guest speakers will speak at round table luncheons Thursday and Friday, and there will be clinics Friday and Saturday mornings at the Pima County, Comstock, Southern Methodist and St. Mary's hospitals, the Southern Pacific Sanatorium, the Desert Sanatorium and the U. S. Veterans' Facility. The annual banquet and dance will be Friday evening at the Santa Rita. Saturday afternoon a golf tournament and a fishing trip to Guaymas have been arranged.

### CALIFORNIA

**Lectures for the Public**—Stanford University School of Medicine, San Francisco, opened its popular medical lectures April 1 with a talk by Dr. Walter W. Boardman on "Conditions of the Mouth in Relation to Disease." Others in the series include:

Dr. Donald E. King, April 22, Backache: Causes and Treatments  
Dr. William J. Kerr, May 6, Forty Fat and Floundering for Circulatory Failure  
Dr. Dwight L. Wilbur, May 27, Vitamin Facts and Fallacies

**Changes Among Health Officers**—Dr. Alphonso O. Skancky has been appointed health officer of San Bruno to succeed the late Dr. Frank Holmes Smith. Dr. Martha E. D. Rinehart-Allen is the new health officer of Fairfax, succeeding Dr. Bernard J. Conroy. The city of Indio has transferred its public health administration to the Riverside County Health Department. The city of Santa Cruz has transferred its administration of public health affairs to the Santa Cruz County Health Department.

**Another Death from Rabies**—A laborer in Los Angeles died in the Los Angeles General Hospital March 12 from rabies, according to the *Weekly Bulletin* of the state department of health. He had been bitten on the finger about February 22 by a dog which he saw lying in the street, apparently dead. When he attempted to pick up the dog it bit him and ran away. No attention was paid to the bite until after the onset of the illness. The patient died within twenty-four hours after entering the hospital.

### FLORIDA

**Medical History of St. Augustine**—A survey of the medical history of St. Augustine is being made in conjunction with a survey of the history of the locality as a part of a plan to restore the city as the first permanent settlement in the United States, according to the *Journal of the Florida Medical Association*. The project is sponsored by the National Committee for the Preservation and Restoration of Historic St. Augustine, the chairman of which is John C. Merriam, president of the Carnegie Institution of Washington. It is being carried out in cooperation with the institution. A committee from the St. Johns County Medical Society is collaborating with the research unit in collecting and arranging data for the survey of the medical history. Members are Drs. Jacob John Spencer, chairman, Vernon A. Lockwood and Robert D. Harris, Jr. Search is being made for data on the Indian concept of medicine at the time Menéndez founded St.

Augustine, the effects on the health of the Indians of contact with the colonists, the medical methods and facilities of the colonists during the first Spanish occupation, the English occupation, the second Spanish occupation and the period which followed the purchase by the United States. The sites of early hospitals have been located and it seems that the first hospital built within the limits of what is now the United States was the hospital of Santa Barbara. This hospital was built by De Canzo, Spanish colonial governor of Florida, in about 1600. It is expected that one of these early hospitals will be included in the buildings selected for restoration, and it is planned to establish a medical museum in the restored hospital. Physicians interested are asked to communicate with Dr. Spencer, 32 Saragossa Street, St. Augustine.

## GEORGIA

**State Medical Meeting at Augusta, April 26-29**—The Medical Association of Georgia will hold its annual meeting at the Forest Hills Hotel, Augusta, April 26-29, under the presidency of Dr. George A. Traylor, Augusta. The Abner Wellborn Calhoun Lecture will be delivered Wednesday by Dr. George H. Semken, New York, on "The Problem of the Lump in the Breast." Dr. Irvin Abell, Louisville, Ky., President-Elect, American Medical Association, will also give an address Wednesday. The Richmond County Medical Society will be host and the speakers will include:

- Dr. Richard Frank Slaughter Jr., Augusta: Relief of Causalgia like Pain in the Isolated Extremity by Sympathectomy.
- Dr. Trumble C. Johnson, Atlanta: Diagnostic Traps in Gastroenterology.
- Dr. Cornelius F. Holton, Savannah: Use of Atropine in Treatment and Control of Malaria Among a Group of Industrial and Agricultural Employees in Georgia.
- Dr. Henry C. Frech Jr. and Perry P. Volpitta, both of Augusta: Amnesia in Labor Comparing Pentobarbital and Hyoscine with Seconal and Hyoscine.
- Dr. Benjamin T. Bersley, Atlanta: Altered Mechanics of the Female Peritoneal Supports.
- Dr. Robert M. Harbin Jr., Rome: Clinical Observations of the Use of Sulfanilamide.
- Dr. Stacy C. Howell, Atlanta: Would You Recognize a Case of Glaucoma?

A symposium on pneumonia will be held Wednesday afternoon, the speakers to be Drs. Joseph Dewey Gray and Morris C. Fulton, Augusta, Thomas L. Ross, Macon, Stewart R. Roberts, Atlanta, and Charles H. Richardson, Macon. Entertainment will include the annual dinner of the alumni of Emory and Georgia university schools of medicine, golf and the annual banquet Thursday evening, when Dr. Eugene E. Murphy, Augusta, will be toastmaster. The woman's auxiliary will meet in Augusta April 26-29.

## ILLINOIS

**Society News**—Dr. Karl D. Dietrich, Columbia, Mo., addressed the Adams County Medical Society, Quincy, March 14, on "Relation of Urology to Obscure Abdominal Symptoms."—At a joint meeting of the Sangamon County Medical Society and the Springfield Medical Association in Springfield, March 3, Dr. Bernard Iantus and Ralph Terry, Ph.D., Chicago, discussed "Progress in Therapeutics."—Dr. Walter C. Alvarez, Rochester, Minn., addressed the Springfield Medical Club, Springfield, March 17, on "Disorders of the Gastrointestinal Tract."

## CHICAGO

**Dr. Harris' Library Given to County Hospital**—The medical library of the late Dr. Malcolm L. Harris, President of the American Medical Association 1928-1929, has been given to the library of Cook County Hospital by Mrs. Harris. The collection consists of about 600 volumes. Dr. Harris served his internship at the hospital and later was attending surgeon.

**Society News**—At a meeting of the Chicago Society of Internal Medicine March 28, Dr. Sidney A. Portis, among others spoke on "Chronic Bacillary Dysentery."—The Chicago Medical Society was addressed March 16 by Drs. Herman L. Kretschmer on "Importance and Significance of Pyuria in Children" and John L. Reichert, "Vaginitis in Childhood."

## INDIANA

**Military Training for Reserve Officers**—A course in medical military instruction will be given to all medical reserve officers in the fifth corps area and to members of the Indiana State Medical Association May 23-27, in accordance with a request made by army officers' newspapers report. The course will be held in connection with the annual graduate meeting in Indianapolis sponsored by the state medical association and the Indiana University School of Medicine. The fifth corps area includes Indiana, Ohio, Kentucky and West Virginia.

## KANSAS

**Appointment of County Health Officers**—The following county health officers have recently been appointed:

- Dr. Edwin R. Hill Jr., Lyons: Rice County.
- Dr. August A. Meyer, Alma: Wabaunsee County.
- Dr. Orin P. Wood, Marysville: Marshall County.
- Dr. Alfred J. Horejsi, Ellsworth: Ellsworth County.
- Dr. Benjamin Brunner, Wamego: Pottawatomie County.
- Dr. Raymond W. Moore, Eureka: Greenwood County.
- Dr. Frank A. Trump, Ottawa: Franklin County.
- Dr. Franklin R. Croson, Clay Center: Clay County.
- Dr. Benjamin L. Phillips, Paola: Miami County.
- Dr. Leon W. Zimmerman, Liberal: Seward County.
- Dr. Ivan B. Parker, Hill City: Graham County.

The following physicians have been reappointed as county health officers: Spencer B. Dykes, Esbon, Jewell County; Robert J. Lanning, Junction City, Geary County; and Donald A. Bitzer, Washington, Washington County.

**Society News**—The Labette County Medical Society was addressed February 23 in Parsons by Drs. Winfred L. Post, Joplin, Mo., on "Foreign Bodies in the Air Passage and Therapy of the Lung Through the Bronchoscope" and Hugh D. McGaughey, Joplin, "X-Ray Radiation in Nonmalignant Conditions."—The Saline County Medical Society was addressed in Salina in February by Drs. Donald A. Anderson and Ernest E. Harvey, Salina, on "Treatment of Syphilis and 'Clinical Use of Protamine Zinc Insulin'."—Dr. Edgar A. Pickens, Wichita, addressed the Ford County Medical Society in Dodge City February 11 on "Management of Prostatic Obstruction."—At a joint meeting of the Shawnee County medical and dental societies in Topeka, March 17, the speakers, all of Topeka, were Louis Fleisch, D.D.S., on "Interrelation of Preventive Medicine and Preventive Dentistry," Dr. James G. Stewart, "Relationship Between Focal Infection and General Medicine," C. N. Mertz, D.D.S., "Oral Infections in Relation to Systemic Infection," and Harold W. Powers, "Relationship Between Sinus Disease and the Teeth."

## MARYLAND

**Annual Session of Medical and Surgical Faculty**—The annual meeting of the Medical and Surgical Faculty of Maryland will be held at the Beldvedere Hotel, Baltimore, April 27. The program will be made up of round table discussions in which the following, among others, will participate:

- Dr. James G. Arnold Jr., The Value of Sulfanilamide in the Treatment of Various Types of Meningitis.
- Dr. Harold R. Bohlman, Use of Sulfanilamide in Orthopedics.
- Dr. Lloyd G. Lewis, Carcinoma of the Prostate.
- Dr. Arthur M. Shipley, Acute and Chronic Pericarditis.
- Dr. James Dawson Reeder, Fistula in Ano: Diagnosis and Treatment.
- Dr. William Raymond McKenzie, Fractures Involving the Paranasal Sinuses.
- Dr. Edgar B. Friedenwald, The Common Cold in Children.
- Dr. Walter E. Dandy, Lesions of the Cranial Nerves.
- Dr. Thomas S. Cullen, Uterine Hemorrhage and Its Cause.

## MISSISSIPPI

**State Medical Meeting at Jackson**—The seventy-first annual session of the Mississippi State Medical Association will be held at the Robert E. Lee Hotel, Jackson, April 19-21, under the presidency of Dr. William L. Little, Vesson. Guest speakers will include:

- Dr. Troy P. Bagwell, Knoxville, Tenn.: Management of Anterior Polymyositis.
- Dr. Newdigate M. Owensby, Atlanta, Ga.: The More Recent Concepts and the Management of Mental Maladies.
- Dr. Edwin Gurney Clark, Nashville: New and Standard Practices in the Management of Syphilis.
- Dr. Raphael E. Semmes, Memphis: Eye, Ear, Nose and Throat Evidence of Intracranial Disease.
- Dr. Ralph O. Rycheiner, Memphis: Iacral Apparatus.
- Dr. Francis E. LeJeune, New Orleans: Hoarseness.
- Dr. Philip W. Brown, Rochester, Minn.: Certain Deficiency Disorders in Intestinal Disease.
- Dr. Leon J. Menville, New Orleans: Carcinoma of the Cervix.
- Dr. Maxwell E. Lapham, New Orleans: Management of Breech Presentation.
- Dr. Isidore Cohn, New Orleans: The Making of a Surgeon.

Dr. James S. McLester, Birmingham, Ala., Past President of the American Medical Association, will deliver the Fawcett Howard Oration on "Causes and Effects of Hypertension." The Mississippi State Pediatric Society will meet Monday, April 18, with the following speakers: Drs. Stanley Gibson, Chicago, "Management of Pneumonia in Childhood," M. Hines Roberts, Atlanta, Ga., "An Evaluation of Our Method of Protection Against Certain of the Infectious Diseases," John J. Underwood, Jackson, "The Immunization Problem in Mississippi," and Horton R. Casparis, Nashville, "The Endocrines as Related to Children." Dr. Gibson will also address the annual banquet on "The Diagnosis of Heart Disease in Childhood." The Mississippi State Hospital Association will meet April 18.

## MONTANA

**Graduate Lectures**—Graduate meetings will be held in Miles City, April 25-26, Livingston, April 27-28, and Missoula, April 30-May 1, under the auspices of the Medical Association of Montana. The speakers will be Drs Myrie G. Peterman, director, department of pediatrics, Marquette University School of Medicine, Milwaukee; Morris Edward Davis, associate professor of obstetrics and gynecology, University of Chicago School of Medicine; and Francis W. Lynch, St. Paul. Dr. Davis will speak on "The Prophylaxis and Treatment of Puerperal Infection," "Medical Complications of Pregnancy," and "Common Obstetric Operations." A public meeting will be held at Missoula, April 30, on syphilis.

## NEBRASKA

**State Medical Meeting at Lincoln**—The annual assembly of the Nebraska State Medical Association will be held in Lincoln April 26-28 at the Hotel Cornhusker. The meeting will open with a symposium on syphilis at which Dr. Charles C. Dennie, Kansas City, Mo., will be the guest speaker. Another symposium will be on pediatric subjects with Dr. Philip C. Jeans, Iowa City, as the guest speaker. Other guests will be:

Dr. Clayton J. Lundy, Chicago, Early Diagnosis and Prevention of Rheumatic Heart Disease  
Dr. Karl A. Meyer, Chicago, Cancer of the Stomach  
Dr. John Zahorsky, St. Louis, The Clinical Aspect of Poliomyelitis  
Dr. Lawrence P. Engel, Kansas City, Mo., title to be announced  
Dr. August A. Werner, St. Louis, Female Sex Hormones  
Dr. Geza de Takats, Chicago, Diagnosis and Management of Peripheral Vascular Disease  
Dr. Vitray P. Blair, St. Louis, title to be announced

Drs. Werner, Engel and Meyer will also speak at a luncheon meeting Wednesday and Drs. Blair and de Takats Thursday. Dr. Dennie will address a dinner meeting Tuesday on "The Effect of Malaria on Syphilis and Other Diseases in South America," and Dr. Lundy will show a motion picture on "Interpretation of a Normal Electrocardiogram." Dr. Homer Davis, Genoa, is president of the association.

## NEVADA

**Annual Registration Due May 1**—All persons holding licenses to practice medicine in Nevada are required by law to pay annually to the treasurer of the Board of Medical Examiners on or before May 1 a tax of \$2. Failure to do so operates to forfeit a licensee's right to practice medicine, and his license to practice can be reinstated thereafter only on the payment of a \$10 penalty.

## NEW YORK

**Buffalo Alumni Meeting**—The fourth annual "Spring Clinical Day," sponsored by the Alumni Association of the University of Buffalo School of Medicine, will be presented April 23 at the Hotel Statler, Buffalo. The guest lecturers will be Drs. Albert A. Berg, Russell L. Cecil and Robert A. Cooke, New York; William Boyd, Toronto, Ont.; Donald Guthrie, San Francisco; Walter I. Lillie, Philadelphia; and William P. Murphy, Boston. Dr. Francis D. Leopold, Buffalo, is president of the alumni association, and is general chairman for the event.

**Health Commissioner Honored**—Dr. Henry Burton Doust, health commissioner of Syracuse, was guest of honor at a luncheon given by the Onondaga Health Association and a dinner given by the Onondaga County Medical Society April 5, celebrating his thirty years of service to the city. Dr. Doust established the tuberculosis bureau in the department of health in 1908 and remained as its head until his appointment as health officer last January. He is professor of clinical medicine at the Syracuse University School of Medicine and has served as president of the Onondaga County Medical Society and the Syracuse Academy of Medicine.

**Society News**—The New York State Association of Public Health Laboratories will hold its twenty-second annual meeting May 23 at the Mary Imogene Bassett Hospital, Cooperstown. Dr. Raphael Schullinger, Brooklyn, addressed the Buffalo Radiological Society and the Buffalo Otolaryngological Society February 14 on "Roentgenologic Aspects of Mastoiditis." Dr. Douglas Quick, New York, will address the Syracuse Academy of Medicine April 19, on "Present Trends in the Treatment of Cancer." Dr. Abraham H. Aaron, Buffalo, addressed the quarterly meeting of the Ontario County Medical Society Geneva April 12 on "Medical Treatment of Gastrointestinal Patients in Whom Surgery Has Failed." The Obstetric Society of Syracuse Hospitals was recently formed with Dr. Ferdinand I. Schoeneck as president and Dr. Glenn A. Wood as secretary.

## New York City

**Professor Appointed**—Dr. Joseph F. McCarthy, professor of clinical urology, New York Post-Graduate Medical School, has been appointed professor of urology and attending urologist to the New York Polyclinic Medical School and Hospital. Dr. McCarthy graduated from Columbia University College of Physicians and Surgeons in 1901.

**The Adam Miller Lecture**—The second Adam M. Miller Memorial Lecture was delivered at the Long Island College of Medicine March 23 by Dr. George L. Streeter, Baltimore, of the department of embryology, Carnegie Institution of Washington, on "Recent Advances in Knowledge of Early Stages of Development in Primates." The lectureship was established in memory of the late Adam M. Miller, M.A., dean and professor of anatomy at the college.

**Medical College Dinner**—The annual dinner of the New York Medical College and Flower Hospital and the Fifth Avenue and New York Ophthalmic hospitals was held March 18 at the Waldorf Astoria. The speakers were Drs. Arvid Lindau, professor of pathology and bacteriology, University of Lund, Sweden, on "Pathogenesis of Gastric Ulcer," and Fordeyce Barker St. John on "Surgical Treatment of Gastric Ulcer, with Report of 800 Cases Over a Twenty Year Period."

**Society News**—A program of papers on syphilis was presented before the Medical Society of the County of New York March 28 by Drs. Thomas Parran, surgeon general, U.S. Public Health Service, Washington, D.C.; David J. Kaliski, George Miller MacKee and Howard Fox. Dr. Norman E. Titus addressed the New York Physical Therapy Society March 2, on "Electrotherapy in Fibromyositis," Jerome Weiss and Hans J. A. Behrend, "Advances in the Treatment of Foot Disabilities with Special Reference to Prophylaxis." Drs. Condit W. Cutler Jr. and Carl Eggers addressed the New York Surgical Society March 9 on "Conservative Surgery for Peptic Ulcer."

**Cancer Exhibit for the World's Fair**—Plans for an exhibit sponsored by the New York City Committee of the American Society for the Control of Cancer at the New York World's Fair 1939 were recently announced. The exhibit will consist of models and dioramas primarily designed to show the weapons that can be used in fighting cancer. Dioramas showing the Curies at work, Roentgen in his laboratory, historical scenes in the development of surgery, models of high voltage x-ray tubes, and models showing the mining of radium will be included. A motion picture showing the progress of experimental work on cancer and a figure of a woman etched on glass and lighted from the back to show how the disease spreads are other features. The members of the committee to select the subject matter for the exhibit are Drs. Francis Carter Wood, John C. A. Gerster, Ira I. Kaplan, New York; Mandel H. Weinstern, Long Island City; Bowman C. Crowell, Chicago; Stanley P. Reimann, Philadelphia; Miss Katherine Taviile, Mrs. Robert G. Mead and Mrs. Francis J. Rigney.

## OHIO

**Postgraduate Day in Youngstown**—The annual Postgraduate Day sponsored by the Mahoning County Medical Society will be held April 28 at the Hotel Ohio, Youngstown. The speakers will be Drs. Frank H. Lahey, Gilbert Horrax, Everett D. Kiefer and Elmer C. Bartels, all of Boston.

**Society News**—Dr. Isidor S. Ravid, Philadelphia, addressed the Summit County Medical Society, Akron, March 1, on "Surgical Problems of the Biliary Tract." Dr. Morris Edward Davis, Chicago, addressed the Mahoning County Medical Society, Youngstown, March 15, on "Treatment of Hemorrhage Occurring Late in Pregnancy." Drs. Joseph H. Barach, Pittsburgh, and Thomas E. Newell, Dayton, addressed the Stark County Medical Society, Canton, at its annual meeting February 9 on "The Present Status of Medicine in South American Countries." Dr. William G. Lemmon, Boston, addressed the Academy of Medicine of Cincinnati March 15 on "Migraine and Epilepsy—Newer Concept and Treatment." Dr. Alfred Blalock, Nashville, Tenn., addressed the academy March 8 on "Hypotension and Hypertension." Dr. Stanley E. Dorst, Cincinnati, addressed the Toledo Academy of Medicine March 4, on "The Role of Vaccine Therapy in Bacterial Sensitivity."

## PENNSYLVANIA

**Society News**—Drs. David L. Farley and Walter Estell Lee, Philadelphia, were the guest speakers at the annual spring clinic of the Lycoming County Medical Society at the Williamsport Hospital April 8. In the morning both officiated at clinics and in the afternoon Dr. Farley presented a paper on "Recent Advances in the Field of Hematology" and Dr. Lee



on "Tumors of the Intestinal Tract"—Dr Herbert Lund, Uniontown, addressed the Fayette County Medical Society, Uniontown, April 7, on "Medicolegal Aspects of Recent Court Trials"—Dr Louis W Wright, Harrisburg, addressed the Dauphin County Medical Society, Harrisburg, March 1, on "Problems, Diagnosis and Treatment of Syphilis"

**Seminars for Practitioners**—The Schuylkill County Medical Society will sponsor six graduate seminars at the Pottsville Hospital beginning April 21 and continuing on succeeding Thursdays. The following program is announced:

Dr Jesse O Arnold Philadelphia Common Obstetric Problems  
Dr Edward J G Beardsley Philadelphia Clinical Diagnosis  
Dr Elliott P Joslin Boston Diabetes  
Dr Raloli M Tyson Philadelphia Pediatric Diseases  
Dr Hugo Roesler Philadelphia Heart Disease and Electrocardiography  
Dr Morris Fishbein Chicago Editor of THE JOURNAL, Modern Obstetrics versus Old Fashioned Maternity Care

### Philadelphia

**Postgraduate Institute**—The third annual Postgraduate Institute of the Philadelphia County Medical Society was held March 28 to April 1 at the Bellevue-Stratford Hotel with a registration of 1,705. The general subject was "Diseases of the Digestive Tract," discussed in eighty-seven lectures by Philadelphia physicians and in scientific and technical exhibits. Dr Arthur C Christie, Washington D C, delivered the annual J Chalmers DaCosta Foundation Lecture, Wednesday evening March 30 on "Comprehensive Planning for Medical Care—the Physician's Responsibility." At this meeting Dr Frederick J Bishop, Scranton, president of the Medical Society of the State of Pennsylvania, and George H Meeker, Ph D, dean of the University of Pennsylvania Graduate School of Medicine, also made addresses. Dr Rufus S Reeves was chairman of the committee that organized the institute.

### Pittsburgh

**Joint Obstetric and Gynecologic Meeting**—The Obstetrical and Gynecological Society of Allegheny County had a joint meeting with the obstetric and gynecologic section of the Academy of Medicine of Cleveland April 4. Clinics were held at the Allegheny General and Magee hospitals and in the evening papers were presented by Drs James S Taylor, Altoona, on "The Incidence of Cesarean Section in Allegheny County", Arthur J Skeel, Cleveland, "Reducing Maternal Mortality in Cleveland," and Robert L Faulkner, Cleveland, "Gynecological Mortality Rate at the Cleveland University Hospitals."

### VIRGINIA

**Society News**—Drs Lawther J Whitehead, Richmond and Wright Clarkson, Petersburg, addressed the Mid-Tidewater Medical Society, West Point, recently, on "Treatment of Acute Infections with X-Ray" and "Cancer and Its Treatment by Radium and X-Ray" respectively. Dr Hayes Campbell, Enfield, discussed "Distribution of Public Welfare Funds in the Counties and Cities of Virginia"—Dr Henry B Mulholland, Charlottesville, addressed the Nausemond County Medical Society, Suffolk, recently, on new advances in therapy.

### WASHINGTON

**Society News**—Dr Frank R Menne, Portland Ore, was the guest speaker at the annual meeting of the Tacoma Surgical Club April 2, the program was devoted to discussions of cancer.—Drs Albert W Holman and Herbert V Thatcher, Portland, addressed the Cowlitz County Medical Society, Longview, February 9, on "Extra-Uterine Pregnancy" and "Surgery of the Hand" respectively.—Drs Clyde R Jensen and Kyran R E Hynes, Seattle, addressed the Grays Harbor County Medical Society, Aberdeen in February on "Arteriosclerosis, Hypertension and Diet" and "The Clinical Approach to Jaundice" respectively.—Drs George D Capacito, Seattle, and Edwin E Osgood, Portland addressed the Pierce County Medical Society, Tacoma, January 25 on edema and anemia respectively.—At a meeting of the Yakima Valley Medical Society, Yakima, February 14 the speakers were Drs Albert C Stewart and Carroll C Carlson, Tacoma on "Hospitalization for the Neurotic Patient and The Present Status of Medical Treatment of the Psychoses" respectively.—Drs Joseph W Shaw and Stephen T Parker addressed the King County Medical Society, Seattle, March 21, on "Treatment of Early Syphilis" and "General Principles in Treatment of Syphilis" respectively.—Dr Emile F Holman, San Francisco, guest speaker at the annual meeting of the Seattle Surgical Society, February 4-5 spoke on "Peripheral Vascular Disease: Diagnosis and Treatment and Indications for and Technique of Splenectomy."

### GENERAL

**Child Health Day—May-Day—Child Health Day** sponsored by the Children's Bureau at the request of the State and Provincial Health Authorities of North America will be observed Sunday May 1 with supplementary observances April 30 and May 2. This year's slogan will be "Speed children on the road to health." State health officers are to appoint state chairmen to arrange for activities of public and private organizations.

**Remington Medal Award**—The Remington Medal of the New York branch of the American Pharmaceutical Association will be awarded to Henry C Christensen, Pharm M, Chicago, secretary of the National Association of Boards of Pharmacy, it is announced. Mr Christensen was appointed to his position with the national association in 1914. He has been a councilor of the American Pharmaceutical Association since 1925 and was president in 1930.

**International Cancer Congress in 1939**—Dr Francis Carter Wood, New York, is president and Dr Donald S Child, Syracuse N Y, is secretary treasurer of the third International Cancer Congress to be held in Atlantic City Sept 11-16 1939 with headquarters at Haddon Hall. Dr Alfred L Loomis Bell, Brooklyn, is in charge of transportation and exhibits. Sections proposed for the congress are general research, biophysics, genetics, general pathology, surgery, radiologic diagnosis, radiotherapy statistics and education. The membership fee will be \$15. Inquiries should be addressed to the Institute of Cancer Research, 1145 Amsterdam Avenue, New York, N Y.

**Survey of Radium Supply**—About 82 Gm of radium is owned by 213 hospitals surveyed in forty-seven cities in the East and Middle West, according to preliminary reports of a survey being conducted by the Eldorado Radium Corporation, which owns the Eldorado mines on Great Bear Lake in Canada discovered seven years ago. At the present price of \$25,000 a gram, this amount is valued at about \$2,050,000. The largest single holder is Bellevue Hospital, New York with 95 Gm, second is Memorial Hospital, New York with 89 Gm. Others with a large supply include State Institute for the Study of Malignant Diseases, Buffalo, 825 Gm and Michael Reese Hospital, Chicago, 65 Gm.

**Otorhinolaryngologists to Meet**—The forty-fourth annual meeting of the American Laryngological, Rhinological and Otological Society will be held in Atlantic City April 27-29. Two symposiums are announced, one on laryngeal cancer and one on allergy. In the first the speakers will be Drs Henri Coutard, Paris and Chicago, Paul Klemperer, William Harris and Charles J Imperatori, New York, Henry B Orton, Newark, N J and LeRoy A Schall, Boston. On allergy the speakers will be Drs Maximilian A Ramirez and Marvin F Jones, New York, French K Hansel, St Louis and Harris P Mosher, Boston. One session will be devoted to consideration of "Chemoprophylaxis as a Means of Preventing Poliomyelitis." Dr Rea E Ashley, San Francisco will give an address and Dr Austin A Hayden, Chicago will present a motion picture on the practical application of the technique. Other addresses will be:

Dr Victor E Negus, London, "Evolution of the Speech Organs of Man"  
Dr David R Higbee, San Diego, "Further Observations on the Autonomic Nervous System"  
Dr Henry L Williams Jr, Rochester, Minn, "The Underlying Factors Concerned in Otic Hydrocephalus"  
Dr John A Kolmer, Philadelphia, "Sulfanilamide in the Treatment of Experimental Streptococcus and Pneumococcus Meningitis"  
Dr Samuel J Crowe, Baltimore, "Diagnosis and Differential Diagnosis of Deafness"  
Dr Max A Goldstein, St Louis, "Thyroxine Therapy in Otosclerosis"  
Dr Horace J Williams, Philadelphia, "Otitis Media and Orbital Cellulitis in Scarlet Fever and a Preliminary Report on the Loss of Hearing in This Disease"

Dr Samuel J Kopetzky, New York, is president of the association and Dr Harold I Lillie, Rochester, Minn, is president elect.

## Government Services

### Congress of Military Medicine

Major General Charles R Reynolds, surgeon general, U S Army, has been designated by President Roosevelt as president of the permanent committee of the International Congress on Military Medicine and Pharmacology which will meet in Washington D C in May 1939. At that meeting, General Reynolds will become chairman of the organizing committee and president of the congress. This is the first meeting of this congress organized at the close of the World War in the Western Hemisphere.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 19, 1938

#### The Law Relating to Abortion

An important debate on the law relating to abortion, in which both the medical and the legal profession took part, was arranged by the Fellowship of Medicine. Sir Beckwith Whitehouse, gynecologist, proposed the motion "That the law of abortion requires reform." He described the law as harsh in its implications as regards the potential mother. Pregnancy could be legally terminated only when the mother's or the child's life was threatened. The law had not the slightest interest in the mother, apart from dissolution. Both the medical and the legal profession were endeavoring to find loopholes in the law for making an obvious wrong a right. We no longer subscribed to the doctrine that the life of the child was paramount and that so long as the mother's life was preserved it did not matter what physical or mental wreck she became. Abortions, including so-called therapeutic abortions, were increasing. It was with regard to abortions undertaken for bona fide medical reasons that he asked for reform of the law. As the law stood, they were illegal. As suggested in Taylor's "Jurisprudence," the law should be reenacted by inserting the proviso "to exempt from liability the fully qualified practitioner who terminated pregnancy for the bona fide purpose of preserving the mother from special danger to life or health." But two clauses should be introduced to tighten up certain weaknesses in the preceding clause. Illegal though it was, so-called therapeutic abortion was being performed today by well known members of the medical profession for indications which were not accepted by others. He was skeptical about the sympathetic attitude with which the problem was sometimes approached. If the law should be reformed to include the health of the mother as an indication, the number of such cases would increase. Two weapons were available against the unscrupulous patient and the "sympathetic" practitioner: (1) notification of all cases of therapeutic abortion before the operation is performed, (2) the unanimous agreement and consent of a board of three individuals—the family physician, the surgeon who performs the operation, and a disinterested physician, surgeon, obstetrician or alienist with a special knowledge of the condition for which the operation is suggested. Notification would act as a deterrent to the potentially criminal type of applicant. Notification should be to one of the health authorities, preferably the county authority or the Ministry of Health, to avoid local publicity of domestic details. The reform would tighten up the existing law and limit the activities of medical abortionists. No hardship would be imposed on the genuine patient, and the division of responsibility would be welcomed by the bona fide practitioner. If "reform" simply implied increased license to perform an operation which the majority of obstetric surgeons detested, Sir Beckwith Whitehouse would be no party to it.

Opposition to the motion was led by Dr. W. H. F. Oxley, who said that agitation for reform came from three groups: (1) those who wished to enlarge the scope of abortion so as to include all cases in which a woman wished to have her pregnancy terminated whatever the reason; (2) those who aimed at reduction of illegal abortions by increased stringency of the law; (3) physicians anxious to have a clear statutory definition of the indications which would make artificial termination of pregnancy lawful. Only the two latter groups need be considered as the thesis of the first was immoral. There was no proof that abortion was increasing in this country; the deaths due to it had remained steady. While he agreed with the object of the second group, he believed that their methods would be ineffective. Illegal abortion was clandestine and therefore the

cases in which information was desired would be the ones in which it was not forthcoming. The vast majority of abortions were brought about by simple means by respectable married women for economic reasons, and physicians were not called in at all. The physician should perform abortion only for preserving the life or health of his patient and not for sociologic or eugenic reasons. He did not believe there ever was a prosecution of a physician who kept within his province.

Dr. Letitia Fairfield thought that the practical interpretation of the law as regards the health of the mother was so broad that it did away with the necessity for the very limited reform advocated. The medical board of three meant formalism, delay, obstruction and interference in clinical matters. Mr. Kitchin, lawyer, would like to see the law declare that it is lawful for a physician to induce abortion if he believes in good faith that the pregnancy would be injurious to health. He would also include the rare cases in which pregnancy follows rape or incest. On a show of hands there was a majority, but not a large one, in favor of the motion.

#### Increase in Number of Medical Students

The following figures have been published

##### Medical Students in the British Isles

	Men	Women	Total
1928	7 279	1 108	8 387
1935	11 176	1 747	12 923
Percentage increase	+53.5	+57.7	+54.2

*Gun's Hospital Gazette* considers that these figures give cause for alarm. A few years ago there was in England one physician to every 800 of population, a figure which was considered to indicate that the saturation point had been reached. During the period of seven years from 1928 to 1935, while the population has not increased by 4 per cent, the number entering the medical profession has increased by more than 50 per cent. Such a relative increase of physicians to the population must mean that the public will pay more for medical care or that physicians will earn less or, more probably, both. It is not an inviting prospect for the medical student, whose training yearly becomes more exacting.

### PARIS

(From Our Regular Correspondent)

March 19, 1938

#### Curie Hospital May Close for Lack of Funds

The Hospital and Radium Institute of the Curie Foundation may be forced to close unless a large subsidy is given by the city of Paris. During the past year there has been a sharp decline in the revenues of the foundation, whose work is known all over the world. The chief sources of revenue in the past have been donations and government subsidies, in both of which a constantly increasing diminution has been noted. The increase in the cost of maintenance of the hospital and the institute has made it necessary to consider their closing unless a relatively substantial subsidy can be secured from the city of Paris. A strong effort is being made by leading members of the city council to grant such a subsidy.

#### Erythema Nodosum and Pulmonary Tuberculosis

Two recent papers again call attention to the association of erythema nodosum and pulmonary tuberculosis. Dr. Etienne Bernard and his associates at the January 7 meeting of the Société médicale des hôpitaux stated that erythema nodosum appears to have a definite place in cases of pulmonary tuberculosis. It has been most commonly reported as being observed at the period of primary infection, i.e., the period of hyperallergy. Their patient was a woman aged 39, who presented the clinical picture of a relatively benign pleuropulmonary tuber-

culosis a year before. About ten months later a recurrence of the pleurisy was noted, accompanied by erythema nodosum. The latter did not appear at the time of the primary infection, thus differing from cases reported by other French phthisiologists.

At the January 14 meeting Dr M. J. Comby told of a man aged 26 whose father had pulmonary tuberculosis. At the age of 4 years the patient had an acute serofibrinous pleurisy from which he had apparently recovered. The erythema nodosum did not appear until seventeen years later, so it was necessary to be careful in stating that an erythema nodosum appeared only during a primary tuberculous infection. Dr P. G. Jacob stated that erythema nodosum could be present at any stage of a pleuropulmonary tuberculosis. These cases were not as rare as commonly believed. Dr Jean Troisier said that in 95 per cent of the cases the erythema nodosum is the sign of a recent primary infection. It is often seen at the time when a negative tuberculin skin test becomes positive. He believed that in Dr Comby's case the attack of pleurisy at the age of 4 years had been a primary tuberculous infection and the second attack at the age of 26 years a reinfection. Dr Halle was of the opinion that more and more evidence was being compiled to show the tuberculous nature of erythema nodosum. In some cases studied by Debre, Saenz and others the bacilli had been found in cultures taken from the lesions. The lesions appear almost symmetrically on the arms and legs near the elbow and knee, never elsewhere. They are accompanied by gastrointestinal symptoms and do not show any tendency to break down, as does a lupus vulgaris. In other types of tuberculous skin lesions observed in children, there is an absence of such a symmetrical distribution.

#### Physicians Set Example in Raising Large Families

In the March 6 issue of the *Concours medical* an editorial by Dr J. Noir states that the decrease in the number of births in France is becoming serious. The number of deaths constantly exceeds the number of births. Of ten million families, there are less than three children in more than seven million families. A praiseworthy effort is being made by the government to raise the birth rate by granting allowances which increase in proportion to the number of children in each family. These allowances, or allocations as they are termed here, are conscientiously distributed among the laboring class, but sparingly in the agricultural and moderate income groups. The medical profession in France has not waited to receive government aid to encourage the raising of large families but has formed an independent organization which already includes sixty-one medical families of more than ten children each. The majority of the fathers are physicians in country districts or small towns. One physician is listed as having seventeen, another sixteen and a third fifteen children.

#### Rockefeller Foundation Endows Chair of Neurosurgery

About \$50,000 has just been granted to the Medical School of the University of Paris to establish a chair in neurosurgery. The first to occupy this position will be Dr Clovis Vincent, whose contributions to this special field are widely known. Unable to secure beds in the public hospitals of Paris, Dr Vincent organized his own hospital where more than 600 brain operations were performed in 1937. With the cooperation of the public hospital authorities he will now have wards at his disposal for neurosurgical work. Opportunity for research in this field will be greatly aided by the Rockefeller Foundation Endowment.

#### New Public Health Decoration

The minister of public health Mr Rucart has established a new form of reward for those who render meritorious service in public health. The new order will have three grades or ranks: chevaliers or knights, officers and commanders. The official ribbon worn by those on whom this honor is bestowed will be blue.

#### Death of Prof Félix Mesnil, Parasitologist

Another of the original group of co-workers of Louis Pasteur has passed away at the age of 70 years. He became associated with the Pasteur Institute in 1892 and made a special study of parasitology. One of his earlier contributions was a book on trypanosomes and trypanosomiasis written in collaboration with Professor Laveran. He was one of the first to introduce chemotherapy in the treatment of tropical diseases and organized the teaching of tropical medicine at the Pasteur Institute of Paris. His pupils are scattered all over the globe. For thirty-five years he occupied the position of editor of the Bulletin of the Pasteur Institute.

#### VIENNA

(From Our Regular Correspondent)

March 10, 1938

#### Epidemic of Psittacosis in Vienna

Vienna was recently much disturbed to learn that several members of one of the city's best known and most distinguished theatrical families, who had been suffering from an obscure illness, had been admitted to the hospital with symptoms suggestive of psittacosis. Public interest increased when subsequently it became known that the attending physician and the consultant internist, Professor Hitznberger, had shown the same symptoms and were hospitalized. That the disease was psittacosis had been declared by Professor Hitznberger himself, who apparently had become infected on his first visit to the ailing actors. While waiting for the identification of the causative agent of psittacosis, which bacteriologic work is done at the Veterinary Research Institute in Moedling, the number of persons affected by the epidemic had risen to twelve, now including not only members of the theatrical family and the two doctors but the servants and two callers on the family. There was one fatality. The sources of infection were found to have been a zebra-parakeet purchased six weeks before and a canary that had been a household pet for many years. Observations made at the Veterinary Research Institute in Moedling, of which Professor Dr Gerlach is director, show that the filtrable virus of psittacosis often may be present as a latent infection in apparently healthy birds, which act as 'bacillus carriers'. Transmission can take place by means of contaminated bird seed and the sneezing of sick birds or the disease may be communicated as a 'dust disease'. As psittacosis is highly contagious the laboratory and hospital workers have to be protected by special measures such as the wearing of masks and rubber gloves. The health authorities issued a warning over the radio to all owners of zebra parakeets and other cage birds to exercise the utmost caution in handling them. In Vienna, especially during the last few years, a vast number of small psittacous birds have been bred and marketed; the keeping of these creatures having assumed the proportions of a veritable fad. Following the outbreak of this epidemic, however, many perturbed people turned their pets over to the animal shelters. The course of the disease in the eleven surviving patients was somewhat as follows: high continued fever with temporary remissions, multiple lobular foci in the lungs, great prostration. In short, the clinical picture of a lingering influenza in which the true state of affairs is disclosed by laboratory tests. In small epidemics previously observed the mortality lay between 10 and 20 per cent.

#### Axillary and Rectal Temperatures in Acute Abdominal Disorders

During the past fifteen years Professor Dr Demmer has been concerned with the fact that often in the course of various diseases noteworthy differences are evidenced between simultaneously recorded temperatures in the axilla and in the rectum. Dr Demmer recently reported the results of his studies before the Gesellschaft der Aerzte in Vienna. He studied the records of simultaneous axillary and rectal temperatures in 260 cases.

of acute inflammatory abdominal disorders. In each case the normal divergence of 0.5 degree C was greatly exceeded, the variations ranging from a minimal 0.7 degree to 1.7 degrees. Dr Demmer considers this abnormal circumstance an indication for operation regardless of the absolute temperature levels. His judgment has been virtually always corroborated by the condition revealed at operation. The author ascribes particular importance to a constant abnormal difference in temperature between axilla and rectum as evidence that peritonitis threatens, even if other classic symptoms are absent. Of the 2,050 cases, 1,400 represented acute appendicitis and operations were performed in 35 per cent of these rather late in the course of the disease, in some cases too late to save life. In 217 (14 per cent) of the 1,400 cases of appendicitis only imperfect classic symptoms had developed, in eighty-four cases (6 per cent) such symptoms were lacking. Conversely, abnormal difference between axillary and rectal temperature was absent, on the basis of positive clinical and surgical observation, in only eleven cases (8 per thousand). The difference was manifested in only twenty-one cases (1.5 per cent) with no inflammation of the organ. According to the foregoing determinations, the classic symptomatology was marked in 14 per cent. On the contrary, the axillary rectal temperature symptom was defective in only 8 per cent in which the pathologic conditions were disclosed at operation and in 1.5 per cent of the operations which revealed no abdominal inflammation. Thus in the vast majority of cases the temperature difference provides almost sure criteria with regard to the presence of a pathologic abdominal process (peritoneal irritation) necessitating surgical intervention. Greater importance should be attached to a difference that has increased within the space of a few hours than to a constant difference although the latter is also extremely pathognomonic. Since in elderly persons cutaneous temperature is as a rule only slowly adjusted to an increased temperature of the internal organs, the sign is especially likely to be manifested in older patients. The sign affords a means of differentiating extraperitoneal inflammatory processes from intraperitoneal conditions which threaten life and which urgently require treatment. The abnormal difference in temperatures provides a timely indication for surgical treatment of a threatening peritonitis and thus saves precious time that otherwise might be lost in a fruitless establishment of organic diagnosis. If one properly interprets this sign, obscure abdominal disturbances can be quickly recognized as inflammatory or noninflammatory. In the discussion, many of those present, including some of the internists, corroborated the soundness of the guiding principles outlined. Many internists have observed that among elderly patients pneumonia, migraine and coronary thrombosis may all run a course without elevation of axillary temperature although simultaneously the rectal temperature may show clear elevations. Increased difference in temperature is, however, most important for surgical considerations and should be evaluated as a warning signal.

#### Knowledge of Hydrocephalus

The neurologist Professor Marburg recently read a paper in the Gesellschaft der Aerzte on the problem of hydrocephalus, in which he stated that the term 'hydrocephalus' denotes a pathologic increase in the amount of cerebral fluid and a concomitant dilatation of the cerebral ventricles. As etiologic factors trauma, syphilis and inflammations are to be considered besides other processes which signify only an increased permeability of the vessels and the hematoencephalic barrier without manifestation of inflammation. Clinically hydrocephalus is differentiated as fetal (balloon head), early infantile (mostly caused by trauma at parturition), late infantile, juvenile or adult. Significant syndromes are hydrocephalus epilepsy, intracranial pressure syndrome, hemiplegia syndrome, Downes syndrome and disintegrative syndrome. These conditions are now best distinguished by means of roentgenography and above all by

ventriculography and encephalography. By the use of a contrast medium the diagnosis has been made so much easier that resorption tests have come to be dispensed with. Hydrocephalus is a problem of permeability of the vessels. This accounts for the excess flow of cerebral fluid into the ventricles, which causes the latter to become dilated. The condition becomes regulated and stabilized by means of the metabolism, the production of hormones and the nervous system. The therapeutic approach must be through these channels. The most favorable results have been achieved by roentgen therapy, other measures are merely symptomatic and palliative. In the discussion, pediatricians and roentgenologists present stressed the value of roentgen irradiation in hydrocephalus but also pointed out that frequently serous meningitis or slowly developing cerebral tumors and cerebral tubercles can present a clinical picture similar to that of hydrocephalus. Statistics collected by the neurosurgeon Schoenbauer were cited. Of 1,372 brain operations in his service, only thirteen were undertaken solely to relieve hydrocephalus. In only one of these thirteen cases was uncomplicated primary hydrocephalus proved by intervention and necropsy. In four other cases on the basis of some other diagnosis it was decided to operate and primary hydrocephalus was found. In 60 per cent of all cases of space-infringing cerebral processes (tumors, inflammations and so on) hydrocephalus will be present. If such patients are first treated with roentgen rays their condition usually deteriorates and they come to operation in bad condition. Accordingly Schoenbauer recommends the establishment of the diagnosis of "simple hydrocephalus" before any irradiation has been tried.

#### Radon in Treatment of Pleural and Peritoneal Exudation

Dr Laszlo recently reported to the Gesellschaft der Aerzte on radon insufflation of the thoracic and abdominal cavities in cases of carcinomatous pleurisy and peritonitis. This procedure, followed by the speaker since 1935, tends to inhibit formation of exudate and to reduce the required number of punctures to a minimum. Laszlo insufflated 300 cc of oxygen through a fluid containing 500,000 mache units of emanation. He treated a patient with carcinomatous pleurisy following mastectomy, whose condition had required frequent puncture, with an "emanation pneumothorax." Small quantities of insufflated gas sufficed to induce the desired remission of the exudative process. Dr Laszlo used the same therapy repeatedly in similar cases as well as in ascites. Whereas formerly, in cases of carcinomatous effusion, puncture was necessary every two or three days, the emanation therapy checked the production of effusion so effectively that intervals of from two to three weeks and even longer were permissible.

#### ITALY

(From Our Regular Correspondent)

Feb 15, 1938

#### International Congress of Pediatricians

The fourth International Congress of Pediatricians, held at Rome, was attended by 900 practitioners from all parts of the world, thirty-eight countries were represented. The executive committee was headed by Professor Spolverini, director of the Clinica di Roma. In his address of welcome he reminded his hearers that ancient Rome in imperial times was the source of much precautionary legislation with regard to problems of demography, of the nursing and of the child. Among the promulgators of such measures were Julius Caesar, Augustus and Trajan. The speaker also mentioned the fact that the first foundling hospitals were instituted in medieval Rome. He then went on to describe the principal social agencies and legal provisions which safeguard the infant and the younger generation in the Rome of today.

The first theme for discussion was social and clinical aspects of the neuropsychoses encountered in pediatric practice.

Speakers were Jundell of Sweden, Glanzmann of Switzerland, Allen of the United States and others. After an expansive development and discussion the following resolution was adopted:

1 Psychoneuroses of childhood and the concomitant problems of child training form an important part of pediatrics

2 These disorders should be a concern of the ward and out-patient services of every pediatric clinic

3 Courses in pediatrics ought to give adequate consideration to the therapy of these conditions, and to their prophylaxis through proper training

4 It is of paramount importance that doctors, especially pediatricians and school medical officers, should act as instructors of the public and should advise parents with regard to various problems of child guidance and training

5 The authorities ought to provide the medical profession the necessary support in these activities, the practitioner should be afforded the opportunity to improve his training by direct educational contact with the populace

On the motion of Professor Pechere it was recommended that all secondary schools and especially girls' high schools should offer instruction in child psychology

The second theme for discussion was the relation of mineral metabolism and water exchange in early childhood to the problem of artificial feeding. Papers were read by McQuarrie of the United States and Csapo of Hungary. McQuarrie first reviewed the diverse composition and dynamic function of the bodily water content, both the intracellular fluid (70 per cent of the total) and the extracellular fluid (the latter is subdivided in its turn into intravascular and interstitial fluids). He then discussed the physiologic and clinical importance of the semi-permeable membranes interposed between the two systems. On these membranes depends the maintenance of approximately uniform osmotic concentration values in the body fluids. These fluids and the blood plasma bear a striking resemblance to the secretions of the gastro-enteric tract, at least with respect to the ionic structure, however great may be the differences in chemical composition. These data have been practically applied with notable success to the problems of vomiting and diarrhea of infants as well as to the effects of electrolytic and acid base equilibrium.

In the second paper Csapo provided detailed illustrations of the interrelation of water and salt exchange, which are in close correlation in the healthy nursing but which follow diverse paths if the baby is ill. This is especially perceptible in acute nutritional disorders. Of the various factors that regulate water exchange the author believes that those pertaining to the kidneys are the most important, the capability of dissolution is not always perfect.

The third topic on the agenda was childhood tuberculosis. The discussion was divided into three subheadings: (1) recent studies of ultravirus, (2) contagiousness of tuberculosis in infants and (3) prophylaxis and therapeutics. Part 1 was dealt with by Professors Dufourt of France and Cohen of Belgium, assisted by Aguirre of Argentina and Fiore of Italy. The conclusions formulated by the speakers occasioned a lively debate: the convinced adherents of the ultravirus theory (Fiore, Frontali, Dufourt) versus the opponents of the theory. Cohen remained uncertain. The most impressive arguments were advanced by Professor Petragani, director general of public health for all Italy. He scouted the alleged existence of ultravirus and especially the possibility of experimental demonstration of an ultravirus of tuberculosis by means of our present equipment.

The problems of prophylaxis and therapeutics were sources of further controversy. Papers on these themes were submitted by Noeggerath of Germany and Chester Stewart of the United States. The congress was in accord with respect to the fundamental need for various social regulations and facilities for isolation but there was some difference of opinion with regard to the relative feasibility of various prophylactic measures.

Questions were raised as to the practicability of vaccination and whether it should be carried on with live bacilli (which procedure is not entirely free from danger) or with dead bacilli (the efficacy of which is challenged by many authors). The Italian school insisted on the efficacy of prophylactic inoculation with dead germs and Professor Petragani announced that new experiments were being conducted on the applicability of an inhalation antitoxin, his own concept.

It was decided to hold the next International Congress of Pediatricians in the United States.

#### Mediterranean Fever

At a medical meeting in Faenza, Dr. Guido Drei talked on Mediterranean or undulant fever as it is encountered in that region of Italy known as Romagna. The author cited various discussions and publications to establish that this disease was unknown in Romagna till some twenty years ago. Subsequently, at intervals, cases have been reported within the region but the diffusion has been remarkable. The contagion is imported principally by herds of sheep which are penned up for the winter in the neighborhood of tenant farm houses. The numerous springtime abortions occurring among these animals are of the infectious type that tends to become epizootic. As a result of their proximity and contact with the sheepfolds, cattle also may become infected, the farmer first becomes aware that something is amiss when the cows begin to drop stillborn premature calves. On the basis of his epizootic and epidemiologic studies in Romagna, Drei concludes that there are two types of causative agent. The first, *Bacillus abortus* Bang, causes epizootic abortion but is rarely pathogenic in man; the second, the micrococcus of Bruce, is abortifacient in sheep and cattle and through these intermediate hosts, pathogenic in man as well. As to the mechanism of transmission, from the animal to man, the sum of data indicate that direct contact with an infected beast is usually responsible for isolated cases and that the pathogenic organism follows the alimentary tract.

In the course of the same meeting Professor Guigni emphasized the increased clinical incidence of the disorder, describing how the early enlargement of the liver often exceeded that of the spleen and is a specific sign in differential diagnosis. Treatment with specific vaccine intravenously administered appears the most effective means of abbreviating or (quite frequently) abruptly checking the long febrile course. The author surmises that the apparent failure of serotherapy in some cases and the slight reactions to the serum in others have a basis in the species of the intermediate host: cases in which cattle were incriminated reacted more intensely and more effectively to the serum than cases traceable to contact with sheep. Guigni's observations were confirmed by Professor Fontana, whose personal observations have led him to conclude that sheep rather than cattle are more likely to transmit undulant fever directly to man.

#### Marriages

RICHARD J. S. SILVER, A. Surg., Lieut. (j. g.) U. S. Navy, to Miss Naomi Holt, both of Great Lakes, Ill., Dec. 7, 1937.

ANDREW BURNET WHITAKER to Miss Phoebe Greenleaf Knight, both of Camden, S. C., in December 1937.

WINSTON TUCKER LA NEAVE JR. Manteo, N. C. to Miss Nellie Rawls of Franklin Dec. 31 1937.

JOHN P. SCHEBLE Milwaukee, to Miss Teresa McCormick of Madison Wis., Nov. 27, 1937.

EARL M. SLAGH, Elsie Mich. to Miss Carol May Durpan of Sebawang in December 1937.

HARVEY E. HOLTZ, Iowa City to Miss Arlene Breck of Traer Iowa February 12.

JOHN C. TUPLEY to Miss Katherine Matthews, both of Memphis Tenn., January 7.



## Deaths

**Louis Burgin McBrayer** ♂ Southern Pines, N C, Louisville (Ky) Medical College 1889, for twenty-one years secretary and treasurer of the Medical Society of the State of North Carolina and at one time president, formerly secretary of the Hoke County Medical Society and past president of the Buncombe County Medical Society, coroner of Buncombe County, 1901-1907, health officer of Asheville, 1909-1914, president of the Southern Conference on Tuberculosis, 1925-1926, at one time member and president of the state board of medical examiners, managing director of the North Carolina Tuberculosis Association, 1915-1937, fellow of the American College of Physicians, formerly superintendent of the North Carolina State Sanatorium for the Treatment of Tuberculosis, Sanatorium, and was active in organizing the fight against tuberculosis in the state, was chairman of the board of directors of the North Carolina Odd Fellows Orphanage of which he had been a member for several years, aged 68, died, April 1

**Norman Jerome Blackwood** ♂ Medical Director, Rear Admiral, U S Navy, retired Santa Barbara, Calif, Jefferson Medical College of Philadelphia, 1888 entered the navy in 1890 and retired in 1930 on or after attaining statutory retirement age, fellow of the American College of Surgeons, superintendent of the Santa Barbara Cottage Hospital, at one time medical director of the Provident Hospital, Chicago, aged 72, died, April 1

**George Franklin Jackson** ♂ Little Rock, Ark, Eclectic Medical University, Kansas City, Mo, 1911, member of the Radiological Society of North America, medical director of the Pyramid Life Insurance Company, on the staffs of the Arkansas Children's Home and Hospital, St Vincent's Infirmary, Baptist State Hospital and the Missouri Pacific Hospital, aged 49, died, January 25, in a local hospital, of heart disease

**John Franklin Culp** ♂ Harrisburg, Pa, University of Pennsylvania Department of Medicine, Philadelphia, 1886 member of the American Laryngological, Rhinological and Otolaryngological Society, fellow of the American College of Surgeons past president of the Dauphin County Medical Society, aged 72, for many years on the staff of the Harrisburg Hospital, where he died, January 17, of adenocarcinomatosis

**Leonidas Mosby Anderson** ♂ Lake City, Fla, Atlanta Medical College, 1895, past president of the Florida State Medical Association and the Columbia County Medical Society, formerly member of the state board of medical examiners, was recently appointed inspector of the state institutions and administration advisor by the state board of health, aged 76, died, January 21, of carcinoma

**Walter Fred Wiese** ♂ Fresno, Calif, University of Illinois College of Medicine, Chicago, 1915, fellow of the American College of Surgeons, member of the city board of education, on the staffs of the Burnett Sanatorium St Agnes Hospital and the General Hospital of Fresno County, aged 49, died, January 29, at the University of California Hospital, San Francisco, of heart disease

**Edward Hill Baldwin**, Newark, N J New York Homeopathic Medical College and Hospital, New York, 1895, formerly member of the state board of medical examiners of New Jersey, fellow of the American College of Surgeons, consulting surgeon to the Homeopathic Hospital of Essex County East Orange and St Mary's Hospital, Passaic, aged 66, died, January 30, of coronary thrombosis

**William Schuyler Colfax**, Pompton Lakes, N J College of Physicians and Surgeons, Medical Department of Columbia College, New York 1887, formerly mayor of the borough president of the board of education, member and president of the board of health and health officer of the community, aged 72, died, January 17, of coronary thrombosis

**Edward Pease Swift**, Rye, N Y, Hahnemann Medical College of Philadelphia 1881 eminent professor of medicine, New York Homeopathic Medical College and Flower Hospital, New York, at one time on the staff of the Metropolitan Hospital, New York, aged 79, died January 15, of carcinoma of the prostate with metastases to the lungs

**Edward Cargill Ehlers**, Essex Fells, N J University and Bellevue Hospital Medical College, New York 1899, served during the World War police marshal and formerly health officer of Essex Fells aged 67 died January 17 in the Mountside Hospital, Glen Ridge, of chronic myocarditis and arteriosclerosis

**Wharton Greene Leak**, East Bend, N C, North Carolina Medical College, Davidson, 1900, member of the Medical Society of the State of North Carolina, aged 63, died, January 19, of diabetes mellitus and streptococcal cellulitis of the arm, following an accidental wound from a hypodermic needle lying on his desk

**Ivy Stansell** ♂ San Antonio, Texas, Southern Methodist University Medical Department, Dallas, 1914, served during the World War, police surgeon, formerly member of the staff of the Robert B Green Hospital, aged 49, died, January 9, in a local hospital, of gastric ulcer, myocarditis and pleurisy

**George Streit**, New Haven Conn, Yale University School of Medicine, New Haven, 1901, member of the Connecticut State Medical Society, at one time on the staff of the Connecticut State Hospital, Middletown, formerly health officer of Torrington, aged 60, died, January 5, of heart disease

**John Campsey Knox**, Washington, Pa, Ohio State University College of Medicine, Columbus, 1908, fellow of the American College of Surgeons, served during the World War, for many years on the staff of the Washington Hospital, aged 59, died, January 15, of cerebral hemorrhage

**Milton Ellis Lando** ♂ Oakland, Calif, Cooper Medical College, San Francisco, 1900, veteran of the Spanish-American War, for many years on the staff of the Children's Hospital of the East Bay, aged 57, died suddenly, January 31, of arteriosclerosis and cerebral hemorrhage

**Isham Faison Hicks**, Dunn, N C, North Carolina Medical College, Davidson 1902, member of the Medical Society of the State of North Carolina, formerly secretary of the Hartnett County Medical Society, aged 61, died, January 21, of chronic myocarditis and phlebitis

**Arthur D Houghton** ♂ San Fernando, Calif, Hahnemann Medical College and Hospital, Chicago, 1902, formerly member of the city council of Los Angeles, served during the World War, aged 66, died, January 23, in the Good Samaritan Hospital, Los Angeles, of carcinoma

**John Joseph Brownson** ♂ Dubuque Iowa, State University of Iowa College of Medicine, Iowa City, 1886, member of the board of education for many years county physician, formerly on the staff of the Mercy Hospital, aged 81, died, January 29, of myocarditis

**Abraham Herman Barr** ♂ Linden N J New York Homeopathic Medical College and Flower Hospital New York, 1911, on the staffs of the Alexian Brothers' Hospital and St Elizabeth Hospital, Elizabeth, aged 51, died, January 1, of coronary thrombosis

**Grant A Neal**, Alabama, N Y, University of Buffalo School of Medicine, 1893, for many years health officer of the town of Alabama and at one time county coroner, aged 69, died, January 7, in the Batavia (N Y) Hospital, of lobar pneumonia

**Robert Rodgers**, Atlantic City, N J, University of Pennsylvania Department of Medicine, Philadelphia, 1889 at one time member of the city council and board of education of Philadelphia, aged 74 died, January 4, of chronic myocarditis and nephritis

**Isaac David Wood**, Silacauga Ala, University of the South Medical Department, Sewanee, Tenn, 1901, member of the Medical Association of the State of Alabama, on the staff of the Silacauga Hospital, aged 63, died, January 30, of pneumonia

**James Roy Beaver** ♂ West Pittston, Pa, Medico Surgical College of Philadelphia 1911, at one time medical director of the public schools, aged 49, on the staff of the Pittston Hospital, where he died, January 16, of ruptured duodenal ulcer

**Noah Bunyan Adams**, Murphree, N C, Tennessee Medical College Knoxville, 1896 member of the Medical Society of the State of North Carolina served during the World War, aged 69, died, January 20 of arteriosclerosis and hypertension

**Myron Scott King** ♂ Boulder, Colo, College of Medical Evangelists Los Angeles 1925, aged 47 on the staff of the Boulder-Colorado Sanatorium and Hospital, where he died, January 4, of acute dilatation of the heart, following pneumonia

**Frederick Harris Morse**, Boston, University of the City of New York Medical Department New York, 1881, member of the Massachusetts Medical Society, aged 81, died, January 14, in Wollaston, of arteriosclerotic heart disease

**James I Campbell** Norwood N C (licensed in North Carolina in 1898), member of the Medical Society of the State of North Carolina aged 63 died January 15, at Charlotte, of a self-inflicted wound of the jugular vein

Francis Ashbell Pomeroy, Cheney, Wash., Long Island College Hospital, Brooklyn, 1883, formerly mayor and member of the school board, aged 89, died, January 31, in Tacoma, of hypertrophy of the prostate and uremia

Charles Depew Ver Nooy @ Cortland, N. Y., Syracuse University College of Medicine, 1892, part owner of the Cortland Sanitarium, president of the board of education, aged 69, died, January 20, of coronary occlusion

Martha J. Short Wright, Rolla, Mo., Ensworth Medical College, St. Joseph, 1892, member of the Missouri State Medical Association, aged 76, died, January 10, of a spinal injury received in a fall twelve years ago

Joseph Thomas Slattery, Dunlap, Iowa, John A. Creighton Medical College, Omaha, 1909, member of the Iowa State Medical Society, served during the World War, aged 57, died, January 1, of mitral insufficiency

Robert Ellsworth Wells @ Nashport, Ohio, University of Michigan Department of Medicine and Surgery, Ann Arbor 1907, served during the World War, aged 52, died, January 3, of a self-inflicted bullet wound

William George Raymond Jotcham, Minna, Nigeria, Africa, McGill University Faculty of Medicine, Montreal, Que., Canada, 1935, a medical missionary, aged 25, died, January 10, of cerebrospinal meningitis

Albert William Tiedeman @ Baker, Ore., University of Oregon Medical School, Portland, 1914, member of the school board, on the staff of St. Elizabeth Hospital, aged 53, died, January 3, of angina pectoris

Eugene Walker Hart, Dadeville, Ala., Baltimore University School of Medicine, 1891, member of the Medical Association of the State of Alabama, aged 74, died, January 27, of chronic cardiorenal disease

Henry Jacques Ravold @ St. Joseph, Mo., Homeopathic Medical College of Missouri, St. Louis, 1886, member of the Radiological Society of North America, aged 74, died, in January, of coronary occlusion

Walter George Gonzales, Hoboken, N. J., Georgetown University School of Medicine, Washington, D. C., 1925, on the staff of St. Mary's Hospital, aged 38, died, January 17, of lobar pneumonia

Lake Lewis Starkey @ Harlingen, Texas, Birmingham (Ala.) Medical College, 1902, on the staff of the Valley Baptist Hospital, aged 61, died, January 2, of injuries received in an automobile accident

William Ernest Nelson, Westmount, Que., Canada, McGill University Faculty of Medicine, Montreal, 1903, served during the World War, aged 56, died, January 13, in the Montreal General Hospital

William John O'Donnell @ Buffalo, Niagara University Medical Department, Buffalo, 1897, on the staff of the Providence Retreat, aged 63, died, January 7, of acute appendicitis and septicemia

Braxton Bragg Pugh, Uniontown, Ala., Medical College of Alabama, Mobile, 1889, member of the Medical Association of the State of Alabama, aged 73, died, January 20, of coronary thrombosis

Calvin O. Sones, Morrison, Ill., State University of Iowa College of Medicine, Iowa City, 1886, member of the Iowa State Medical Society, aged 84, died, January 12, of coronary thrombosis

Ralph Lemen Taylor, Long Beach, Calif., University of Denver Medical Department, 1893, formerly city health officer of Long Beach, aged 66, died, January 8, of cardiac decompensation

John Decard Hall, Chavies, Ala., Southern Medical College, Atlanta, Ga., 1892, aged 69, died, January 31, in the Erlanger Hospital, Chattanooga, Tenn., of carcinoma of the prostate

John C. Scott, Lebanon, Mo., Indiana College of Medicine and Midwifery, Indianapolis, 1888, member of the Missouri State Medical Association, aged 66, died, in January, of pneumonia

John W. Wood, Boiling Springs, N. C., Louisville (Ky.) Medical College, 1892, member of the Medical Society of the State of North Carolina, aged 66, died, January 15, of pneumonia

Joshua B. Thurman, Atlanta, Ga., Bellevue Hospital Medical College, New York, 1886, aged 79, died, January 31, of shock, following prostatic resection for adenoma of the prostate

Silas T. Richman, Columbus, Ind., Medical College of Indiana, Indianapolis, 1883, Northwestern University Medical School, Chicago, 1899, aged 85, died, January 3, of uremia

J. Leonard Lucas, Edwards, Miss., Meharry Medical College, Nashville, Tenn., 1906, aged 52, died, January 23, of septicemia with stricture of the urethra and urinary obstruction

George Wellington Good, Berwyn, Ill., Jenner Medical College, Chicago, 1908, at one time postmaster of Laverne, aged 69, died, January 10, of chronic myocarditis and nephritis

Jean Jacques Lamontagne, Montreal, Que., Canada, University of Montreal Faculty of Medicine, Montreal, 1932, on the staff of St. Luke's Hospital, aged 28, died, Dec. 23, 1936

Joseph Keefer Fisher, Sunbury, Pa., Temple University School of Medicine, Philadelphia, 1920, formerly county coroner, aged 41, died, January 29, of pulmonary tuberculosis

George S. Townsend, Sylvania, Mich. (licensed in Michigan in 1900), for many years member of the school board, aged 90, died, January 12, of uremia and arteriosclerosis

Samuel Henry Roberts, Skillman, N. J., Cornell University Medical College, New York, 1936, aged 27, died, January 29, of an overdose of phenobarbital, self-administered

William Henry Hanchette, Los Angeles, Chicago Homeopathic Medical College, 1879, aged 84, died, January 15, in a hospital at San Pedro, of carcinoma of the prostate

Philemon Roy @ St. Paul, Drake University Medical Department, Des Moines, Iowa, 1896, aged 68, died, January 21, at McAllen, Texas, of coronary thrombosis

Curtis Albert Tucker, Springfield, Mo., American Medical College, St. Louis, 1903, served during the World War, aged 65, died, January 3, of coronary thrombosis

Walter N. Sherman, Pasadena, Calif., Indiana Medical College, Indianapolis, 1875, aged 83, died, January 15, in the Las Encinas Sanitarium, of chronic myocarditis

William Albert Smith, Wichita, Kan., Medical College of Ohio, Cincinnati, 1897, aged 65, died, January 31, of obstructive jaundice and carcinoma of the pancreas

John J. Arberry, San Francisco, University of Louisville (Ky.) Medical Department, 1891, aged 74, died, Dec. 19, 1937, of hemiplegia and cerebral arteriosclerosis

Hall Vestal, Richmond, Calif., Cooper Medical College, San Francisco, 1900, aged 63, died, Dec. 2, 1937, in a hospital at Berkeley, of carcinoma of the bladder

Richard Andrew Elliott, Avon, Mass., Long Island College Hospital, Brooklyn, 1896, aged 71, died, January 11, in Boston, of hypertrophy of the prostate

Charles Edward Chapman, Mobile, Ala., Medical Department of the University of Alabama, Mobile, 1900, aged 59, died in January of cerebral hemorrhage

Joseph Francis Schlotterer, Philadelphia, Medical College of Philadelphia, 1905, aged 56, died, January 5, of chronic myocarditis and nephritis

T. G. Harriman, Long Beach, Calif., Northwestern University Medical School, Chicago, 1901, also a lawyer, aged 63, died, January 18, of arteriosclerosis

Edwin Kendall Richardson, Toronto, Ont., Canada, University of Toronto Faculty of Medicine, Toronto, 1895, aged 68, died, January 4, of pneumonia

Phileas Desmarais, Pascoag, R. I., School of Medicine and Surgery, Montreal, Que., Canada, 1899, aged 64, died, January 15, in a hospital at Howard

George Ernest Darrow, Los Angeles, John A. Creighton Medical College, Omaha, 1907, aged 62, died, Dec. 14, 1937, of carcinoma and pneumonia

Lon W. Pulley @ Trinidad, Texas (licensed in Texas under the Act of 1907), aged 62, died, January 1, in a hospital at Dallas, of coronary occlusion

J. Albert Beauchamp, St. Cesaire, Que., Canada, University of Montreal Faculty of Medicine, Montreal, 1921, aged 42, died, January 14

Robert H. Peacock, Winter Haven, Fla., Hahnemann Medical College of Philadelphia, 1881, aged 79, died, Nov. 28, 1937, at Lake City

Edwin V. Hervey, Indianapolis, Medical College of Indiana, Indianapolis, 1886, aged 80, died, January 16, of cerebral thrombosis

Frank R. Hill, La Mesa, Calif., Pulte Medical College, Cincinnati, 1884, aged 81, died, January 9, of cerebral hemorrhage

## Correspondence

### REGULATIONS FOR PREVENTION OF EPIDEMIC DIARRHEA OF THE NEWBORN

*To the Editor*—The regulations for conduct of maternity divisions in New York City stated by Dr. William H. Best (THE JOURNAL, April 9, p. 1155) indicate that New York has done an excellent piece of work which should be of value to the rest of the country. The following constructive suggestions concerning the New York rules are offered with the hope that not only New York but also other interested groups will, with equal candor, criticize Chicago's regulations, thereby leading to the formation of the best possible type of procedures.

The New York regulations were established 'after numerous conferences with leading obstetricians, pediatricians, representatives of the county medical societies, the Academy of Medicine, and various hospital, medical and nursing groups. The Chicago regulations were established by those groups most interested in this type of work, namely, representatives of the Chicago Medical Society, Chicago Gynecological Society, Chicago Hospital Association, Infant Welfare Society, Chicago Hospital Council, Catholic Hospitals of the Archdiocese of Chicago, American College of Surgeons, Chicago Pediatric Society making up the Joint Maternal Welfare Committee of Cook County, and the Chicago Board of Health. It was the purpose of the group to formulate regulations which they thought would be practical so as not to interfere with the successful conduct of a hospital, and at the same time not so lenient that preventable morbidity and mortality might occur.

Regulations which are satisfactory and reasonable and which are developed by the cooperative effort of interested groups are much more likely to be successfully carried out than those which are arbitrarily set up and enforced.

New York's regulation 1 (a) does not provide for the isolation of a mother delivered elsewhere in an institution than in the clean maternity division. For example, a precipitate delivery might occur in a corridor or an unclean operating room. Such a case should be isolated as provided in the Chicago rules.

New York's regulation 1 (b) requires that there be two delivery room units, one for normal and one for infected cases. Chicago's regulations permit the delivery in infected cases in a private room, properly equipped, if a second delivery room is not available.

New York's regulation 1 (c) would require the delivery room to be on the same floor as the rest of the obstetric division.

Chicago's regulations allow the delivery room to be elsewhere than on the obstetric floor if the patient is properly safeguarded while being moved from the delivery room to the obstetric floor. By so doing, extensive reconstruction of the existing building may be avoided.

New York's regulation 2 (b) requires that an isolation nursery be maintained. Chicago's regulations provide that an isolation nursery be maintained and, in addition, that a second clean nursery be available when several cases of diarrhea occur. Thus infected infants may be isolated in one nursery, healthy contacts isolated in a second nursery, and nonexposed and noninfected newborn infants placed in still another nursery. Experience with outbreaks of infection in newborn nurseries has shown that morbidity and mortality are high because of failure to recognize what is occurring and to isolate immediately the infected infants. Furthermore, *contacts also must be isolated*. In our experience, if contact with exposed infants is avoided, outbreaks may be prevented so that closing of the maternity ward is obviated. When a case of diarrhea occurs in an institution in the interim of deciding whether an epidemic is really starting and whether the maternity service should be closed,

it is important that nonexposed newborn infants be kept out of contact with those who have been exposed.

New York's regulation 2 (a) requires that every hospital shall have a nursery for the care of premature and immature infants. There are many institutions in which births of premature infants occur no more frequently than once every two or three weeks, if that often. Chicago's regulations permit the care of premature infants in the normal newborn nursery, provided there is adequate specially trained nursing personnel throughout the twenty-four hour period and satisfactory equipment, which are felt to be the most important factors in the care of premature infants. Chicago's regulations do not require that every hospital have a premature nursery. They permit the transportation of premature infants in a specially constructed incubator ambulance to some central premature station, if the hospital does not wish to have the expense of maintaining a premature nursery.

New York's regulation 2 (b) does not require that an infant, delivered elsewhere in an institution than in the clean maternity section, be isolated. Chicago's regulations provide for such isolation, as well as for the isolation of infants exposed to communicable infections, particularly impetigo of the newborn or epidemic diarrhea of the newborn, since such infants may contract the disease and, unless isolated, may expose others.

New York's regulation 2 (d) does not require lined bassinets. Chicago's regulations do, to help prevent injury to babies.

New York's regulation 2 (d) does not require that when a carrier system is used there be redraping of bassinets before infants are put into them, nor does it specifically require washing of the hands before taking each baby out of the carrier. Chicago's regulations provide for such redraping and hand washing, as well as for arrangements to have one nurse constantly in attendance on the infants in the bassinets on the carrier to prevent contact with visitors or other possible sources of infection.

New York's regulations 2 (k) and 4 (d) require sterilization of bottles twice, once in the nursery and again in the formula room. Chicago's regulations require that the bottles be cleaned in the nursery and sterilized in the formula room.

New York's regulation 2 (l) permits the use of cresol for the cleansing of equipment, such as the stethoscope bowl which comes in contact with the infant's skin. Since burns have resulted in some instances from the use of cresol, Chicago's regulations provide for the use of safe antiseptics only for such purposes.

New York's regulation 4 does not require running water with foot control in the formula room suite. This will make proper hand washing difficult in the formula room. Chicago's regulations require this.

New York's regulation 4 (c) does not require that sugar solutions be stored in individual bottles and prepared fresh daily, as is required by the Chicago rules. In epidemics of diarrhea which have occurred in newborn nurseries, in a number of instances it has been found that sugar solutions, dextrose or betalactose, have been stored in bulk and used for the babies. In Chicago nurseries, tests of such solutions stored in bulk have revealed their bacterial count to be exceptionally high.

New York's regulation 6 requires disinfectant solutions to be used after hand washing, but these are not required in Chicago's regulations.

New York's regulation 6 does not specify running water with arm, knee, or foot control devices. Chicago's regulations specify this. Without running water operated in this way, proper and thorough hand washing is not possible.

New York's regulation 7 (c) requires scrubbing and the wearing of rubber gloves or the use of forceps to change a nipple on a bottle. The Chicago regulations rely on thorough scrubbing of the hands.

New York's regulation 8 requires that the newborn nursery be under the supervision of the obstetric or of the pediatric

service The Chicago regulations specifically require that a single physician be in charge of the nursery and responsible for its conduct, which seems more satisfactory from the standpoint of enforcement

New York's regulation 10 (a), to be adequately carried out, would require prostatic examination for all male individuals, and urinary and stool examinations on all personnel on duty in the maternity division Furthermore, to be of value, such examinations would have to be repeated at monthly intervals Chicago's regulations require nose and throat cultures, Dick and Schick tests, and examination for focal infections Attention is focused on infections which might be responsible for outbreaks of disease in the maternity division and nursery, such as tonsillar or sinus infections, and diarrhea, as well as on existing or recent active communicable infection in potential carriers

New York's regulation 13 (a) requires that personnel "shall wash their hands with soap and hot water and immerse them in a suitable disinfectant solution" Chicago's regulations do not require disinfectant solutions but stress thorough hand washing Disinfectant solutions are not effective for hand sterilization There are many who believe that when disinfectant solutions are available there is carelessness in hand washing while, if they are not provided, hand washing is more thorough and satisfactory

New York's regulation 13 (a) makes no provision as to the drying of the hands Chicago's rules require drying on individual towels

New York's regulation 13 (b) requires that physicians visiting mothers in wards wear a face mask, cap and gown This is not required in the Chicago regulations, since it is felt that it will do little to prevent infections and that it is an unnecessary hardship to wear a mask, cap and gown just to visit a patient

New York's regulation 13 (d) requires a mother to wear a face mask during the time she is breast feeding her baby By the Chicago regulations, the mother is required to wear a mask only when she has an infection of the upper part of the respiratory tract

New York's regulation 14 (a) requires that a minimum of visiting be permitted but no statement is made concerning what is considered a minimum of visiting The Chicago regulations specifically permit two visitors a day, exclusive of the husband

The Chicago regulations require each hospital to establish its own adequate obstetric staff and requirements for the calling of consultations, and for the conduct of maternity divisions which will prohibit the abuse of oxytocics, analgesics and operative procedures during deliveries It is hoped that these regulations will aid in reducing the number of deaths from cerebral hemorrhage asphyxia, and prematurity The New York regulations do not require these things

The Chicago regulations will tend to prevent not only gastrointestinal infections but all infections of the newborn and will tend to protect the mother, fetus and newborn from many disasters other than those due to infectious agents

HERMAN BLUNDESEN, M.D. Chicago  
President Board of Health

### BENZEDRINE SULFATE—A WARNING

To the Editor—I cannot refrain from saying a word of approval with regard to your editorial on Benzedrine Sulfate—A Warning' I am a neurasthenic doctor 65 years of age and when some months ago a sample of benzedrine sulfate fell into my hands with the accompanying literature I had to try it It worked like a charm if I got up in the morning feeling somewhat dragged out and took a tablet of benzedrine sulfate I felt pretty well all day and could do my work without tiring, the result was that I took it almost daily Before

very long I got so I couldn't sleep and couldn't eat I have never been much of an eater but could eat reasonably well It never occurred to me that the benzedrine sulfate could be at the bottom of it and I had a gastrointestinal series run and a rectal examination made, it finally dawned on me that the benzedrine sulfate had something to do with it and I promptly stopped it I can now sleep pretty well but have not as yet recovered my appetite I am glad once more to confirm the wisdom and the conservative attitude of THE JOURNAL

DONALD MACLEAN, M.D., Reno, Nev

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES THEY DO NOT HOWEVER REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST

### ANESTHESIA FOR DELIVERY IN HOME

To the Editor—What type of anesthesia would be best to use for delivery in the home in a rural community? Please give information as to dosage method of administration time for giving length of time that it is effective, and any other helpful information M.D., California

ANSWER—Satisfactory and safe analgesia in labor, particularly for patients to be delivered in the home, is as yet not available It must be realized that analgesic drugs of all kinds are likely to add to the complications of labor and delivery Undoubtedly, some form of analgesia must be used in the majority of cases It is thus necessary to acquaint oneself with one method, to learn its limitations and the complications that are likely to result from its use and to be prepared to meet these when they occur

Morphine and scopolamine properly administered probably offer the safest analgesia for the patient to be confined in her home In the usual primiparous labor morphine from 0.01 to 0.016 Gm (one-sixth to one-fourth grain) and scopolamine from 0.00025 to 0.0005 Gm ( $\frac{1}{2000}$  to  $\frac{1}{400}$  grain) can be given when the cervix is completely effaced and dilated sufficiently to admit two or three fingers (from 3 to 4 cm) In the large majority of cases this will be sufficient to carry the patient to the end of the first stage of labor Some form of inhalation anesthetic usually ether, can be used during the second stage It is rarely advisable to repeat these drugs unless the labor is unusually prolonged, in which case a much smaller dose should be used It has been the experience of some that scopolamine in ampules is more efficacious than the tablets

The only serious complication that may result from the use of these drugs is morphine narcosis of the baby This is more likely to occur when the drug is administered less than four hours before the birth of the child It is likewise more apt to occur following a difficult delivery or in the event that the baby is premature It is most important to learn how to resuscitate asphyxiated babies The simplest and most effective procedure is to clear the air passages by means of a hard rubber catheter and to carry on respiration artificially by means of this catheter until breathing has been well established The baby should be kept warm during the process of resuscitation If these measures are carried out, no baby need be lost as a result of the analgesia administered to the mother (Shute Egan and Davis M.E. The Effect on the Infant of Morphine Administered in Labor, Surg, Gynec & Obst 57 727 [Dec] 1933)

### VITAL STATISTICS

To the Editor—What do the figures on vital statistics mean? When a death rate is given does that refer to the number of deaths from a given disease according to the whole population of the town at the time of the report or does it refer to the number of deaths according to the incidence of the disease? M.D. New York

ANSWER—The death rate of a city is the number of deaths divided by the population It is usually expressed per thousand or per hundred thousand persons is frequently on an annual basis may be for specific population groups (by age sex or color) and may or may not be by diagnosis The other rate referred to (the proportion of cases which terminated fatally) is customarily termed a case fatality rate, not a death rate

POSSIBLE CAUSES OF RECURRING ITCHING  
AND SWELLING FEET

*To the Editor*—A white man aged 45 for the past three years has been having a periodic recurrence of swelling and itching of the feet. At regular intervals of about three weeks he notices intense itching on the plantar surface of the left foot which spreads over the entire surface and at the same time the foot swells gradually reaching about twice the normal size. The swelling is firm and boardlike. The swelling and itching reach a maximum in about forty to sixty hours and subside rapidly in from six to ten hours. There is no redness and apparently no thermal disturbance locally. There is a systemic reaction consisting of a rise of temperature to 100 or 100.2 F, loss of appetite, general aching and malaise. Between attacks he feels fine in every way. The patient served twelve years in the United States Navy prior to 1931. Most of this time was spent in the tropics. There has been no serious illness previous to the present condition. Seasons of the year and geographic locations have no effect on the severity or periodicity. Repeated examinations reveal nothing abnormal including the blood count, condition of the heart, blood pressure, lungs and prostate and x-ray examination of the gallbladder and the gastrointestinal tract. I would appreciate any information on the nature of this condition or any suggestions regarding further study. MD Missouri

**ANSWER**—The paucity of symptoms makes diagnosis difficult and necessitates the consideration of diagnoses that seem remote possibilities. The swelling of the foot suggests (1) local interference with blood or lymph circulation, (2) local infection or (3) general infection with local manifestations.

The regularity of the attacks and the absence of local pain, tenderness and redness make it difficult to ascribe the swelling to recurrent attacks of phlebitis of the deep veins. Intrapelvic interference with circulation seems also unlikely, but the pelvis should be examined carefully for anything that might cause mechanical obstruction, and a Frei test for venereal lymphogranuloma should be made.

In the temperate zone by far the commonest cause of periodic swelling of the foot and leg is the erysipelas-like infection, said by some to be due to the Fehleisen streptococcus, which causes elephantiasis. The inflammatory attacks come on at irregular intervals and soon lead to permanent enlargement.

Infection with a filaria is supposed to be the common cause of elephantiasis in the tropics, though there are some who dispute this. Like the form seen in the temperate zone, the attacks of fever and inflammation occur at irregular intervals and soon lead to permanent enlargement, attaining immense dimensions in many cases. In spite of these objections, the blood of the patient should be examined for filaria during one of the febrile attacks.

Undulant fever and malaria, when mild, are so variable in their manifestations that they come under suspicion. Three years is a long course for undulant fever and the three year interval between the return of the patient from the tropics and the onset of the present trouble seems a long period of latency for malaria, yet the blood should be examined for plasmodia during a febrile paroxysm. The intradermal test and Huddleson antigen agglutination test for undulant fever also should be made. The differential white count should be studied with these possibilities in mind. Both cause a leukopenia with relative increases of the mononuclear cells, but in undulant fever the lymphocytes are increased, while in malaria the relative increase is in the large mononuclears.

Finally, it is a good rule to think of syphilis, regardless of the difficulty of explaining the symptoms in accordance with the usual manifestations of the disease. Hepatic syphilis is known to cause periodic febrile attacks. This possibility should be investigated.

## DANGERS FROM BURNING MOTION PICTURE FILMS

*To the Editor*—If a motion picture film ignites while the operator is showing it, what other dangers are present aside from the flames and poisonous gases? What precautions can be taken? MD Wyoming

**ANSWER**—Poisonous gases likely to arise in connection with the burning of motion picture films are the oxides of nitrogen, if cellulose nitrate films are used and carbon monoxide. The so-called safety films are believed to be cellulose acetate. In addition there may arise some carbon dioxide and in the case of the acetate films gases of complex nature are derived from the acetate component. Most states and cities require booting for housing motion picture operations, particularly if the machines are located in the same rooms occupied by public audiences. This is especially true if the films used are of the cellulose nitrate variety. These booths while serving the interests of the audience may increase the exposure for the operator since the gases created are confined to small spaces. By way of protection the following is suggested: 1. The booths particularly if small should be exhausted in order to remove excessive heat under normal conditions and to aid in the removal of injurious

gases in the event of fire. 2. Fire extinguishers should be available, but it is to be remembered that the carbon tetrachloride type of fire extinguishers may lead to dangerous carbon tetrachloride vapors. Further, there is some belief that carbon tetrachloride in contact with highly heated surfaces may lead to the formation of phosgene, which is of course highly toxic and dangerous. 3. Emergency respirators are available through purchase, which should be worn by operators when confronted with a fire emergency. 4. Under some, but not necessarily all, circumstances a sprinkler head system or analogous equipment may be called for, either by law or by good practice for the combating of this type of fire.

## BITING LIPS AND CHEEKS

*To the Editor*—I have had a lifelong habit of biting the lips and cheeks and stripping off the mucous membrane. What can be done to prevent this? Would it be safe to put a clip of some sort over a tooth so as to prevent complete occlusion? Is there such a device on the market? If so where should I inquire for it? MD New Jersey

**ANSWER**—The habit of biting the lips and cheek is decidedly dangerous and should not be allowed to continue. The continuous irritation produced in this way may set up serious pathologic conditions. The first step in the consideration of such a case should be the construction of accurate plaster or stone models made from plaster impressions of the dentures. A careful study of these may show conditions that invite the execution of the habit. Judicious grinding of the teeth may make the execution of the habit difficult enough to effect a cure.

Such lip and cheek biting is often to be considered as a nervous habit and should be corrected under the advice of a neurologist. Such habits are unconsciously executed and sometimes they can be cured by consciously executing them before a mirror regularly every day for a time, the object being to bring the muscles and nerve tracts involved in the execution of the habit under conscious control and thereby breaking up the unconscious execution. If no other method is available, probably removable appliances should be made that can be worn on the teeth so as to make the execution of the habit impossible. These could be made only for the individual patient and by a skilful dentist. They should be used only as a means of breaking the habit.

## MANAGEMENT OF MYOPIA

*To the Editor*—A patient was discovered to have pronounced myopia of the left eye at the age of 4, so that normal vision (20/20) could be obtained by a lens -13D. The right eye was normal. This patient never had binocular vision and still almost exclusively uses her right eye. She wore eyeglasses on the advice of an eye specialist and the strength of the lens of the left eye was gradually worked up to -13. In the meantime the right eye became myopic and last year the correction for the right eye was -1.5 (the patient is now 13 years old). At present the eye specialist has prescribed the lens -3. He insists that she shall always use her glasses for far and near work and is of the opinion that she must always have eyeglasses to obtain vision 20/20 in each eye. When I expressed my fear that the strain of accommodation in near work would aggravate the myopia he told me that if she should not use the eyeglasses and should do her work without using much accommodation her eye muscles would become atrophied. Now another eye specialist has examined the patient and tells me that 1. She should not have had any correction for the left (myopic) eye. This eye would not become atrophied from lack of use as the previous specialist told me. The correction of this eye tended to make the right eye myopic. 2. The patient should have as little correction of vision as possible for comfortable street use. She should do most of her writing and reading without the eyeglasses. 3. Her eye muscles would not become appreciably atrophied and her myopia would not progress or would progress much slower if she should follow this advice. Please advise me as to what course the patient should follow and whether the opposing advice is due to a difference of personal opinion of these two eye specialists or whether there are two different schools in ophthalmology with opposite approaches to guiding a case of myopia. MD New York

**ANSWER**—This case exhibits an essential difference of opinion between ophthalmologists with reference to several points about myopia. First one would agree with the physician who prescribed correction for the eye with high myopia in infancy. While it is not certain that the vision would have deteriorated at this age if the correction had not been prescribed, an eye that is uncorrected is probably more liable to develop convergent or divergent squint than if it is corrected. Many ophthalmologists might not agree with him, however, that the patient must use the full correction for both eyes at all times for fear the eye muscles will become atrophied. On the other hand there is no evidence that the myopia will become aggravated by wearing this correction. In other words, it would probably be advisable that the full correction be worn a considerable part of the time, especially if the patient does not notice any discomfort on close work. If discomfort is noticed



on close work the correction may be cut down or the patient may go without glasses for this purpose alone without harmful effect. It is not likely that wearing or going without the glasses will have any effect on the progress of the myopia, which will proceed to a certain point in any case and then stop. Conceivably a large number of ophthalmologists might disagree with the opinion here expressed, the answer can only reflect what seems to be a sound point of view.

#### POSSIBLE SYMPTOMS FROM COPAVIN

*To the Editor*—The preparation copavin Lilly used for the treatment of common colds, has been written up several times in THE JOURNAL. Each capsule is said to contain one fourth grain (0.016 Gm.) of papaverine and one fourth grain of codeine. Several patients taking one capsule every two hours (five in twenty-four hours) have complained of nausea without vomiting which discomfort was relieved after discontinuance of the treatment and of being dizzy and light headed from which condition relief is obtained soon after treatment is discontinued. In a clinic the percentage of cases showing either symptom or both is less than 1. Two months ago a husky man with a forty-eight hour old common cold was given copavin. After two or three doses he became nauseated but did not vomit. The medicine was stopped. The next day the nausea continued and another doctor reports that he is still suffering from the effects of the treatment (although neither he nor the patient knows what drugs were originally prescribed). The man lost three days from his work immediately after the nausea began. Have you had similar complaints and inquiries? Can either papaverine or codeine or the combination cause nausea that could require treatment for two months after the administration of copavin? My own interpretation is that he had a cold not limited to the upper respiratory tract but involving the gastrointestinal tract and the nausea may have developed in spite of medication. Will you kindly advise me?

M D New York

**ANSWER**—Copavin is the proprietary name under which Eli Lilly markets under license of the University of Minnesota a mixture of codeine sulfate and papaverine hydrochloride.

Codeine is rapidly absorbed from the bowel and rapidly excreted to the extent of 80 per cent or more in the urine. Although codeine has only a slight tendency to cause digestive derangements, cases have been reported in which single doses of from 100 to 200 mg. (from 1½ to 3 grains) have caused marked nausea. The presence of papaverine, which is not known to produce nausea in therapeutic doses of from 30 to 60 mg. (one-half to 1 grain), may potentiate the action of codeine.

The patient received from 30 to 45 mg. (one-half to three-fourths grain) of each of the drugs. In very susceptible individuals this could cause nausea, but owing to the rapid elimination of the drugs (assuming no impaired kidney function) it is a perfectly sound assumption that the continued nausea is not due to the codeine phosphate-papaverine hydrochloride mixture administered two months previously.

#### ATTACKS OF APNEA IN INFANT

*To the Editor*—A boy aged 22 months has been subject to attacks of complete cessation of breathing since returning home from the hospital following a normal delivery. The duration of the attacks has tended to decrease. A variety of causes will bring on an attack such as crying, falling and hurting himself or being undressed for an examination by the doctor. An attack begins by his taking a deep breath and holding it. During the period of absent breathing the child lies very quiet although occasionally he will move his limbs. He becomes cyanotic. Then he takes a deep breath lies quiet again as if unconscious with shallow breathing and frequently micturates and defecates. Then he takes another very deep breath begins to cry or goes on with his play although very pale for an hour after. He appears very tired after such an episode. The attacks may occur several times a day or be absent for a week. Their duration is from a few seconds to a full minute. At birth he weighed 5 pounds 2½ ounces (2,340 Gm.). At 22 months he weighs 22 pounds (10 Kg.). He is small for his age but his body is well proportioned. Development has been normal. He was slow in learning to sit and walk but was within normal limits. His intelligence is normal. A consultant discovered a soft apical systolic murmur but I have been unable to confirm this. The child is subject to colds during which wheezing breath sounds can be heard. Examination is otherwise negative. The family history is negative. Please comment on diagnosis, prognosis and treatment.

M D New York

**ANSWER**—The case offers an interesting diagnostic problem. The episodes are strongly suggestive of breath holding. The early onset is a point against this but the spells described are characteristic of this disorder. Other conditions that must be considered here are: 1. Congenital heart disease though the lack of constancy of the murmur described would make this diagnosis questionable however an x-ray examination should be made of the heart, which would at the same time also show the size of the thymus. 2. Hypoglycemia which not infrequently results in spells simulating the signs described and the careful study of the diet and the blood sugar are indicated. 3. Tetany. Blood calcium determinations should be made at

the same time that the tests for hypoglycemia are made. A dextrose tolerance test would also be of value in considering the possibility of hypoglycemia. 4. The possibility of an old birth hemorrhage affecting the respiratory center or similar changes resulting in minor epileptic attacks. There should be some more definite neurologic signs if this is a factor. Since no definite diagnosis can be made from the symptoms presented the treatment must be expectant and the result will depend on the underlying cause of the clinical manifestations. In view of the uncertainty of the cause, the prognosis had best be guarded. If the child is a breath holder, the prognosis is good but any of the other possibilities might not be so favorable. There is no medical therapy for breath holding. The prognosis is excellent and the condition usually disappears after the second year.

#### INTERSTITIAL KERATITIS

*To the Editor*—A man aged 23 came under my care on July 13, 1931, for treatment of an acute inflammatory condition of the cornea of his right eye, characterized by a flakelike cloudiness of the nasal third and involving the deeper layers. The corneal epithelium was intact and there was no vascularization at this time but as the cloudiness advanced to involve the whole cornea a few deep blood vessels were seen to grow in from the limbus. The vascularization was of a broom type and cells were observed in the anterior chamber. Vision was reduced consistently with the edema of the cornea. A search for foci revealed a four plus Wassermann reaction. There were no other foci. History disclosed that the father has been under antisyphilitic treatment within the last few years as the result of a coincidental finding of a positive blood Wassermann reaction. A diagnosis of acute interstitial keratitis of syphilitic origin was made on the history, serologic tests and character of the lesion. The patient was immediately treated with intramuscular injections of a bismuth compound supplemented by silver arsphenamine intravenously along with local treatment to the eye consisting of yellow mercuric oxide atropine and heat. This eye responded quite well to treatment and at the end of two months his vision was normal and the only evidence of the disease is a few flakelike opacities visible under the slit lamp and two or three short deep blood vessels protruding 5 mm. in from the limbus. The center of the cornea was not vascularized. At about the time the right eye had cleared in spite of treatment the left eye showed a similar cloudiness of the cornea at the temporal limbus and there is one deep blood vessel growing in at this stage. There are a few cells in the anterior chamber. The cloudiness is advancing at each subsequent visit to my office. I have thought of giving intravenous typhoid therapy but I have not started it. The second eye has now been involved for four days and the cloudiness has extended about 4 mm. from the temporal limbus. Will you kindly offer this for the opinions of other ophthalmologists? I shall appreciate their recommendations. I should also like to know how frequently the second eye is involved in cases in which intensive antisyphilitic treatment has been given over a two months period prior to its inception in the other eye. Please omit name.

M D New York

**ANSWER**—Interstitial keratitis is as in this case, almost always bilateral. Involvement of the second eye may occasionally be prevented by energetic antisyphilitic treatment, begun while the process is still unilateral. In view of the fact that the right eye in this patient has cleared almost completely and that the present involvement of the left eye is apparently minimal, it seems likely that a continuation of energetic combined antisyphilitic treatment with an arsphenamine bismuth compound and potassium iodide will clear up the process completely in both eyes.

Interstitial keratitis differs from all other inflammatory lesions of syphilis in the extreme slowness with which it responds to chemotherapeutic treatment. The subsidence of the acute inflammatory reaction usually takes six weeks or longer. The duration of healing may be lessened and the possibility of complete healing very much enhanced by means of combined nonspecific treatment and chemotherapy. The best procedure would be induced malaria followed by energetic chemotherapy. Failing this, intravenous injections of typhoid vaccine sufficient in dosage to produce a temperature of from 103 to 105 F., may be actually combined with chemotherapy, the arsenical injection being given at the height of the fever.

#### CONVULSIONS DURING ANESTHESIA

*To the Editor*—What is known concerning convulsions during ether and nitrous oxide anesthesia? Is there any adequate therapy for such a condition? Also I should appreciate a few references on the subject. M D New York

**ANSWER**—The literature concerning convulsions during anesthesia has been presented in considerable detail by Lundy (Convulsions Associated with General Anesthesia, *Surgery* 1:66 [May] 1937). This article included a complete bibliography on the subject. Another article (Lundy, J. S. and Lundy, E. B. General Anesthesia Complicated by Convulsion, *The Journal* March 20, 1937, p. 971) was practically an abstract of the article in *Surgery* without however the tabulated information concerning the 150 cases that were considered there.

An informing article on this subject was one by E C Rosenow and R M Tovell (Etiology of Muscular Spasms During General Anesthesia, *Am J Surg* 34 474 [Dec] 1936)

The therapy for the condition, at present, is the use of an antispasmodic. For this purpose the soluble barbiturates given intravenously are the first to come to mind and without doubt are the best and most available ones. It should be possible, and often is, to control the convulsions until the effect of the anesthetic wears off, and it should be possible even for days if necessary, as is possible in treating tetanus, until the disease has run its course.

Doubtless the authors will be glad to furnish reprints of the articles referred to.

#### FEMALE GENITAL HYPOPLASIA AND PREGNANCY

To the Editor—A woman aged 25 has been married six years and has had no pregnancies. She is desirous of becoming pregnant. Menstruation began at 14 but has never been regular since its onset. She has gone without a period for as long as a year. Her last menstrual flow was the third week in February previous to that it occurred in December 1936. Two weeks before onset she complains of severe cramping in the lower right quadrant. The breasts are rather large and pendulous and do not contain any masses. There is slight tenderness over the lower right quadrant of the abdomen. The cervix is smooth and small and there is a very slight erosion. The uterus is of infantile type anteverted and freely movable. The right ovary is twice the normal size slightly tender and freely movable. The left ovary is normal. The thyroid is normal. In 1934 she was given intravenously antuitrin S 0.04 cc daily for five days and one theolol capsule three times a day. This treatment was followed only two months. Since she came under my care I have given her for three months follutein 1 cc intramuscularly three times a week for two weeks followed by intramuscular theelin in oil 1 cc five times a week the third week in the month with a week of rest. During the third week she also takes two hormone tablets three times a day. She has not as yet had a menstrual period. I am interested in establishing a menstrual cycle with a later possibility of pregnancy. I would appreciate a suggestion of a plan of treatment to establish a cycle. MD Texas

ANSWER—This patient's fundamental trouble is undoubtedly a female genital hypoplasia dating from puberty, and the results now show themselves in the form of functional derangements—evident disturbances of menstruation, and probably also a considerable degree of infertility. It is doubtful whether much can be done in such cases at the age of 25, since by that time the growth impulse and the developmental urge have been lost.

Within certain limits it is a rational procedure to use endocrine preparations as a remedy for amenorrhea and oligomenorrhea. In this particular case such treatment seems to have been unavailing.

The first step in the management of the case should be a complete examination with reference to medical and endocrinologic factors. Not uncommonly one finds a thyroid deficiency, even though the patient presents none of the classic signs of myxedema. For that reason repeated determinations of the basal metabolic rate are indicated.

As a last resort one might try light irradiation of the ovaries, a procedure the technique and results of which are described by Jarcho (*Gynecological Roentgenology*, 1931).

#### ALUMINUM HYDROXIDE AND KAOLIN ENEMA

To the Editor—Will you please clarify the article by Drs Ejerly and Brenhaus in *THE JOURNAL* July 17 1937 on these points: 1 The relative proportions or amounts of aluminum hydroxide and kaolin in 3 ounces of water for an enema. 2 The technique of rectal administration of this thick suspension. L L CORCORAN MD Rock Rapids Iowa

ANSWER—The preparation is a pure colloidal suspension of 3 per cent aluminum hydroxide and 15 per cent of kaolin. This mixture is used with an equal amount of warm distilled water. No difficulty is experienced in injecting this and a small rectal tube or rubber catheter is used for the administration.

#### BREATH SOUNDS OVER ABDOMEN

To the Editor—What is the origin of breath sounds easily heard with a stethoscope over the abdomen in a patient dying from hemorrhage?

MD New York

ANSWER—Breath sounds may be heard with the stethoscope over the abdomen in many normal healthy persons when the subject of the investigation indulges in forced breathing with the mouth open. It is assumed that the phenomenon is produced by the transmission of tracheal sounds along the vertebral column into the abdomen, although there is no proof to substantiate this assumption. A patient dying from hemorrhage is usually gasping for breath. That is to say he is indulging in forced breathing with mouth open. There appears to be no other reason why the breath sounds may be heard over the abdomen in such a patient.

## Council on Medical Education and Hospitals

### ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty Fourth Annual Meeting held in Chicago Feb 14 and 15 1938

(Continued from page 1217)

DR J W BOWERS, Fort Wayne, Ind., in the Chair

### JOINT SESSION OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS AND THE FEDERATION OF STATE MEDICAL BOARDS

FEBRUARY 15—MORNING

#### Hospital Internships as a Requirement for State Registration

DR WINFORD H SMITH, Baltimore. I addressed a letter to a number of hospitals and asked the following questions: 1 Are the internships in your hospital rotating in type? 2 Do you believe that the rotating internship is the most valuable type to the individual? 3 Do you think this type of internship should be the only type recognized by state boards of licensure? 4 Please discuss any phases of this problem which occur to you. The answers received indicate clearly that there is a large body of opinion definitely opposed to the present demands of boards of licensure in some states. It may be said that these boards are merely carrying out the law and that in many instances the present boards are not responsible for the law. That is undoubtedly true, but it is also probably true that in some states those boards have some discretion in the matter and could be more liberal than they are. Furthermore, the board of licensure is probably the best body to undertake to bring about a change in the law where a change is desirable.

Hospitals owe a duty to the public to provide the best type of service to their patients. That is their main function. The requirement of a fifth, or intern, year indicates that in some states it is felt that a four year course in medicine is not sufficient to fit a man to practice medicine. Why make the hospital responsible for completing his training by methods which result in sacrificing the type of organization which is for the best interest of the patients? Should the aim be solely the training of general practitioners? If so, then the requirement should be a two year rotating service, at least, for a one year rotating service will not yield the result desired. We must recognize that many graduates intend to specialize. Is it not desirable, therefore, to recognize types of intern service which promote such training to the fullest degree? There are many competent authorities who feel that it is desirable. It is my opinion that boards of licensure might better decide what hospitals are capable of giving interns an experience of sufficient value to qualify them for registration, recognizing that this may be accomplished by various types of service.

I recognize that it is necessary to require a rotating service in some hospitals perhaps in the majority of hospitals, because the majority of general hospitals are too small to offer any other type of internship which would be worth while. I do not claim that the straight service is the only type that should be recognized. Each type has its place. A straight service internship in a teaching hospital of one year's duration of the sort I have in mind is a more valuable experience than a one year rotating internship in a small hospital of the nonteaching variety. An exposure to four or five different fields of medical work for a period of from two to three months each does not of itself offset the advantages which straight service internships in teaching hospitals enjoy. I believe that men trained for twelve months on a straight service, under conditions I have outlined are safer men than one who has had a hodgepodge experience with a little of everything and not much of anything. I plead for a more liberal attitude by boards of licensure in recognizing that no one type of internship possesses all the virtues desired.

and that other factors than type of internship should be considered in determining a man's fitness for examination and registration.

The rigid exclusion from the licensing examinations of applicants who have not had a rotating internship will in the long run deprive the state of some of the best medical talent that would otherwise have been attracted to it. The reasons for this statement are as follows. It is my belief that medical students prefer teaching hospitals for internships, as a rule. They will seek such internships regardless of whether or not they are rotating in character. This means that in general the teaching hospitals have the pick of the graduating classes and they naturally take the best men. Since most of the teaching hospitals are straight service hospitals, it follows that on the whole the best men presenting themselves for licensure in any one year will be those who have had straight service internships.

#### DISCUSSION

DR FREDERIC A. WASHBURN, Boston. A study of the medical licensure statistics published in *THE JOURNAL* April 24 1937, shows that, in nineteen states, medical licensing boards require that a candidate should have an internship experience before they will examine him for licensure. In some states which require an internship the position that a rotating service be required has been taken by their boards of registration. In New Jersey the law reads that the candidate must have served at least one year in a hospital approved by the board. The other sixteen states which require an internship have as a rule in their laws a clause similar to that of the New Jersey law. The remaining twenty-nine states make no internship requirements of their candidates for licensure. I am not sure how many states now make the requirement of a rotating internship, but I have been told that the number is eight. That no man is fit to practice medicine who has not intern experience in most of its branches is not in my opinion a sound position. How did it happen that the states which demand a rotating service came to take this stand? I fear that the Council on Medical Education and Hospitals is not blameless. The standards of the Council are high. It has a staff of five engaged in inspecting hospitals approved for intern training. It is doing a remarkably good job in this field. Boards of registration in medicine may well consider that the hospitals which it approves meet all necessary requirements for the training of interns. The teaching hospital with the straight service gets the pick of intern material and gives a training far superior to the one year rotating service of the small hospital, yet several of the most important states in the Union choose the poorer man with the poorer training. The result over a period of time is bound to be a mediocre medical profession in those states. These states are forcing on their own young men who wish to study medicine and desire to settle in their native states the acceptance of inferior hospital training. Those hospitals which feel they must have rotating services should make them two years long at least. The one year service with three or four shifts is bad for the intern and worse for the hospital. Is it possible that these states have in mind forcing the great teaching hospitals to adopt rotating services? I believe that with further study of the subject they will perceive their error and the damage they are doing to their own states and will soon modify their requirements.

DR IRVIN D. METZGER, Pittsburgh. We have had resurrected today a problem which most of us thought was settled twenty years ago—that of the type of internship best suited to medical graduates. The legal regulations in a score or more states which require internship as a fifth year of medical education and the recommendations of the most discerning evaluating agencies prove conclusively that a rotating type of service is the only one that assures safe and competent general practitioners. Only such qualified persons are of legal concern to state boards. Many of us contended twenty years ago and have had no reason as yet to change our minds that an apprentice type of hospital training in which the recent graduate has had a carefully supervised service in each department of medicine in a minimum of one year's time is the ideal one whether he expects to enter general practice or pursue further studies looking toward a specialty. The ability to survey the needs of any

patient and the ability to determine the methods of meeting such needs can be done best by one who has the broader view in medicine and who has no biased trends in any one direction. A narrowed field of preparation induces a narrowed clinical conception of any case. In the questionnaires sent out by the reader, he was obviously unfair. He sought replies only from the teaching hospitals, and those, with one exception, were located in states in which no internship is legally required. The writer also was unfair in comparing the exceptional small hospital that gives a rotational type of service with the eminent teaching hospital that gives an elective service. A better comparison would have been made by considering the many larger and well organized hospitals that have followed the rotational services for years and which have consistently shown no desire to change. The writer also intimates that states which adhere to the rotational type of service ere long would be sure to decline in the efficiency of its practitioners of medicine. The state I have the honor of representing initiated internship as a legal requirement for the fifth year of medicine in 1914. My experience on the board throughout practically all this time has failed to observe any complaint against the rotational service, either from medical faculty or from individual practitioner. Internship aims to make amends for the weakness developed in medical practice when scientific passion swept through our profession some years ago and which shifted toward scientific culture the emphasis formerly placed on the art of medicine. When preceptorships of olden days were eliminated and the prospective physician was shunted from the high school to the college of science and thence into the medical school before he sensed the meaning of the profession, we inevitably acquired in students many professional misfits. Those days are gone, and let them be gone because of other serious weaknesses. However, we need, by the establishment of a proving period before full acceptance to the study of medicine, some such, perhaps, as the probation period now in vogue in schools of nursing to sensitize the longing neophyte early to the significance of the medical profession. At the end of his medical studies a complete apprenticeship internship in every department of medicine will help to establish more fully the sense of responsibility that is so needful in its practice. By some such procedure we may recapture this vital essence known as the art in medicine and may restore to practice even greater genuines than the old family doctor.

DR HAROLD RYFINS, Albany, N. Y. I would draw your attention to the fallacy of Dr Metzger's remarks with reference to the training of engineers. Medicine is not engineering. Any analogies as to the proper training of engineers does not carry over into the field of medicine. He speaks about training the honor man of every class of engineers throughout the country, perhaps 1 per cent of the young engineers. If you carry that over into medicine and take the top man which would be about eighty medical men in the country, it really doesn't make any difference what training you give them those men will train themselves. What are you going to do about the other 99 per cent? The internship is potentially the most important and actually, the weakest link in medical education. It is potentially the most important point because it is at that time the young man can really begin to cash in on his four years of rather academic training. It is actually the weakest point because we have relatively, at least, neglected the educational factors of the internship. In the teaching hospitals, by and large, the educational facilities obtained during the internship years are very good. In the average hospital and, certainly, in the smaller hospitals for the most part, they are very bad. The young man is allowed to take a great deal of responsibility that he isn't trained to take, or else he imitates the bad practice of men who have not had the proper kind of training. It may be that he gets a sense of responsibility and thinks that he can do things but, as a matter of fact, he can either not do them well or not at all. Internship is probably essentially a part of the educational program of the student. If that is true it should be under the medical schools. The medical schools have the responsibility and the facilities for carrying out the responsibility for training the undergraduate medical students. They are the only people that have it. Sooner or later all the schools will have to take over the responsibility of the fifth year intern.

training and I hope they will not do it in any one set way. I hope some schools will have a rotating service and others will have mixed service, some will have one year services and others will have two year services, but at least it will be on an educational basis under the auspices of persons who are competent to run an educational program. I do not believe it advisable for the state to take on the guidance of the internship year at all. At present something like 97 per cent of our graduates voluntarily take internships, and I have never found a regulation which affects less than 10 per cent of any of the people affected is a very valuable one. There are certain exceptions. If you do decide that you really must require an internship of every one, it is a serious thing for any state body to set up fixed requirements. Having served as a member of a state body for fifteen years, I want to be recorded as saying that I know of no state educational organization or no state licensing body which has the money or the men or the facilities to speak authoritatively at all about the quality of internships in the hospitals throughout the country. The American Medical Association has five men working on it. They have done as good a job as can be done under the circumstances, but those acquainted with it including members of the Council, are aware that it is not nearly as good a job as ought to be done. There are many hospitals which are approved which should not be approved. They are constantly being visited and revisited. They should have a larger staff of inspectors to do the job properly. How is any one state board, with perhaps one inspector, going to take on itself the classification of internships throughout the United States? It is a preposterous assumption of power and it is a purely paper matter.

DR WILLIAM J. PEPPER, Philadelphia. The lack of liberality of the Pennsylvania board is one of my greatest tribulations. Our students want a two year rotating service. I approve of a rotating service two years in length. There are very few of them in the state. Our boys, then, often want to go outside the state. If one says he wants to go to some other hospital outside the state they say 'Well, that is beyond our ken. We are not able to inspect it and we don't know, if you go there whether we will examine you.' They scare the boy into taking an internship in Pennsylvania and then he has to take a one year rotating service.

DR E. M. MACFARLANE, Iowa City. Coming from a teaching institution I have some definite notions. I agree with the thesis presented by Dr. Smith that we cannot be limited to the one type that both types of internship are valuable. I also agree with Dr. Pepper. We are hoping to establish in our institution a two year rotating service. I want to take exception as Dr. Pepper did to Pennsylvania. A man who graduated from our institution the second man in a class of ninety-seven and had a year's rotating internship in one of the leading teaching hospitals in the country, a year's straight internship in our own teaching hospital then one or two years in a tuberculosis hospital in Connecticut and two years in a tuberculosis hospital in Illinois and is now in a tuberculosis institution in Pennsylvania and cannot get reciprocity because he had only four weeks of obstetrics because he didn't learn how to run an x-ray machine, and because he can't get a certification showing just how many cases he had through this type of training yet he is a leading surgeon and is recognized over the country. I agree that we cannot be putting state barriers up.

DR A. S. BEGG, Boston. I am a dean and while we have to skirmish around and find places for interns the question about what should be done in the states is beyond my ken. I agree that if we have a rotating internship it should probably be of two years duration. I am also of the opinion that there are many good straight services where a man gets excellent training in services which are not on his list. At the Boston City Hospital for example the two year internship in medicine allows the man, by consultation and otherwise to see a good deal of surgery, a good deal of pediatrics and a good deal of contagious diseases but yet it is a straight service. It has a lot of things to recommend it. I think the question of settling this matter by the state should be made as easy a modification as possible because we certainly know there are well trained

men from some of these teaching hospitals that ought to be permitted to practice medicine in all the states of the Union.

DR STANLEY H. OSBORN, Hartford, Conn. You cannot train a specialist to do general practice work, and you cannot train a general practitioner to do specialty work. What we need is both of these groups. I am strongly in favor of both for the benefit of the people on whom we are practicing.

DR ROBERT U. PATTERSON, Oklahoma City. Oklahoma is one of the states mentioned which require an internship before a license to practice is given. In addition, we have in Oklahoma a scarcity of practicing physicians. About 54 per cent of the graduates of the University of Oklahoma, in medicine, return to their own states to practice. That being the case two years ago we raised the rotation internship from twelve months to twenty-four months. I am in favor of straight internships as well as rotating internships. In Oklahoma we need the rotating internship. Our men are not able to get the training in Oklahoma except in a relatively few hospitals. We advise them to go to teaching hospitals, if it is possible but of course there are not enough teaching hospitals by any means to meet the demand. If a hospital is approved, we take it as evidence that it has a proper staff, a well organized staff and will take an interest in the interns when they are entrusted to its supervision, and a man who gets an internship whether it is rotating or straight, in an approved hospital will come out with the information which will make him safe to let loose on society. I am in favor of all kinds of internships but for Oklahoma I think the men who are going to practice there should have two years, at least, and that is our present position.

DR WINFORD H. SMITH, Baltimore. My remarks were not solely in favor of the nonrotating type of internship. The whole burden of proof was to get recognition of some other type than the rotating type. I believe these other types are entitled to recognition. Dr. Metzger said I was unfair in comparing the straight internship in the large teaching hospital with the small hospital, as I did. I grant it is unfair, but that is the requirement which is set up in some of the states. For that reason I picked it out because I repeat, to me at least it is more or less absurd to compare a rotating internship of one year in a hospital with a daily average of fifty patients with a straight service in a well organized teaching or nonteaching hospital with a sufficient number of beds and sufficient opportunities of an educational character to make that service valuable. My plea is do not limit your recognition to those who have had only a rotating type of internship. I recognize that there is merit in a rotating internship. I also maintain that there is distinct merit in other types, including the straight internship.

DR I. D. METZGER, Pittsburgh. Nobody regrets more than I that we are tied down by law to a strict form of rotational type of internship. I wish we were given discretionary powers in many things with respect to the medical act so that we could do the thing we feel we ought to do. The law was amended two years ago to the effect that when a person has been out seven or more years the board may accept an equivalent for internship. We are very glad to accept straight internship when that is the case. I do not, however, state that we ought to have a straight internship and encourage that. I think we still ought to have the rotational type for at least one year, perhaps not so exacting as we require for Pennsylvania.

#### American Students in Italian Medical Schools

WILLIAM C. MACFARLANE, New York. As the majority of American medical schools require more than the legal minimum requirement of preliminary education, the Italian authorities have agreed to require at least three years of preliminary education for entrance to Italian medical schools. In addition, applicants whose records are otherwise satisfactory are required to demonstrate by examination that they understand the Italian language.

Any American student who desires to apply for admission to an Italian medical school is now referred by the Italian consul in his locality to the Royal Italian Consulate in New York City. He is required to submit a certified copy of his previous academic record. The record is evaluated from the

standpoint of the character of courses completed, general scholastic average, science average and percentile score on the medical aptitude test. The Italian authorities have given friendly cooperation in every way.

The majority of Americans now studying medicine in Italy are matriculated at the University of Bologna. The greatest number were matriculated in 1933-1934 and since then the number has decreased yearly because of the strict control of the commission established at the royal Italian consulate at New York, which has the duty of examining the credentials presented by candidates for admission. Arrangements were made to provide for obligatory posts for internships for American students at the institutes and hospitals, starting with the year 1936-1937, and sixty-five places have been provided.

#### Foreign Medical Students

DR C. B. PINKHAM, Sacramento, Calif. Postbellum problems of growing importance to this congress have challenged the standards of medical education and licensure in this country. During the past few years a rapid change in both medical education and licensure has come about in foreign countries. The seriousness of the situation has caused growing concern as to the future of the heretofore high standards, both ethical and economic, of medical practice in the United States. When it was learned several years ago that a large number of our younger men and women had left the United States, intent on studying medicine in some foreign school, many of the medical examining boards in this country seemed indifferent to the serious problem which would be faced when as graduates, this group would return to the United States and materially increase the normal influx of foreign medical school graduates intent on qualifying for a license to practice medicine. We comment on the frequency with which graduates of German medical schools file a large document printed in Latin on thin paper and showing (lower margin) what purports to be the seal of the institution. This "seal" is also printed thereon. Such a document purports to be a copy of the applicant's original medical diploma. When questioned, he explains that his original medical diploma is kept in the archives of the university and that a graduate may secure several printed "copies" for use. We ponder as to how many alleged medical school graduates are foisted on the public via a local print shop. During twenty-five years' continuous service as a member and the executive officer of the California Board of Medical Examiners, I have uncovered many fraudulent credentials, including purported medical diplomas.

The majority of the medical examining boards comprising this federation are now thoroughly awakened to the seriousness of the problem presented by both the foreign medical student and the foreign medical school graduate. Many states have refused to license applicants who hold foreign medical credentials. Others, including California, have amended the law governing medical licensure so as to conform with the resolution adopted by the Federation of State Medical Boards at its 1933 session and by the House of Delegates of the American Medical Association at its May 1936 meeting in Kansas City. The problems involved demand that not only medical examining boards but every organization interested in medicine guard against the threatened destruction of the high standards of medical education licensure and practice, which for so many years we have struggled to uphold.

#### DISCUSSION

DR WILBURT C. DAVISON, Durham, N. C. The clinical teaching of an American medical school is far superior to that of practically all the foreign medical schools I have seen, and I have seen most of them. For that reason there is good training there. If the American Medical Association or the Federation of State Medical Boards, and so on set up rules with regard to excluding certain students we get into diplomatic difficulties but the individual medical schools can do this, if they decide to admit or not to admit these students into their third or fourth year there will not be many of them admitted which I think is desirable. In Dr Pinkham's paper one requirement has been set up, namely, with regard to coming into American hospitals as interns. That I don't think

is worth the paper it is written on. There are 6,700 hospitals in this country crying for interns, and they will take almost anything that can walk. I have hundreds of letters on my own desk asking for any kind of intern, it doesn't make any difference whether it is good, bad or indifferent. Mr. MacTavish's figures showed from twenty-one to thirty-seven students a year are going to Italian schools alone. It is really the equivalent of an additional American medical school. Most of those students are city students. Figures show that 80 per cent or more of the city students go back to practice in the city, a field that is overcrowded. In North Carolina there are counties with one physician to 3,500 of population, in South Carolina there is one physician for 4,500 of population. And though the profession is crowded in New York, Chicago and Philadelphia, in the rural districts additional doctors are needed. Why make the present amount of maldistribution worse by increasing the city students, who are largely the ones who go to the Italian schools? An exception should be made for the ones who are outstanding in their field and have practiced ten years in foreign countries and come over to this country.

DR JAMES N. BAKER, Montgomery, Ala. Two underlying causes which have precipitated this problem are (a) an ambition on the part of American parents to have their offspring trained somewhere, somehow, for professional careers and (b) the disturbing political unrest throughout Europe, which has been and is now forcing many professionally trained persons to seek greater security elsewhere. Professor MacTavish's paper deals with a culling process applied by one state to a particular group headed for the medical schools of Italy and with 72 per cent of failures, over a five year period, to meet the qualifications considered by him to constitute a fair test. One wonders about the outcome had similar tests been applied to the entire group of 1,648 enrolled in foreign faculties from the United States in 1936-1937. True enough, there has been some decrease in 1933-1934 there were 1,905, in 1934-1935 there were 1,944 and in 1935-1936 there were 1,637, with 333 completing their courses in this year. California in an effort to comply with a resolution passed by the 1936 House of Delegates of the American Medical Association, has clamped down, no doubt other states, as they encounter present difficulties of evaluating the foreign graduate, will be forced to resort to various devices and to varying degrees of drasticity. Necessarily there will likely follow a conglomerate, incoherent and confusing medley of state regulations bearing on the foreign graduate. Such an unhappy state of affairs already exists regarding medical licensure in general. Might it not be possible at this time and before greater obfuscation arises to attempt to envisage this problem as one national in scope and have the remedy or regulations to be applied broad based on such a concept?

DR I. D. METZGER, Pittsburgh. There is not a state board in the United States that does not constantly face this proposition. We in Pennsylvania are right near the gateway into which these people come, and it has been necessary from the very beginning to watch carefully the credentials of them all. We don't require that they be licensed but they must have certification that they may be licensed. Internship should be in America, preferably within one of our own hospitals, in which we can check up on the type of work the candidate is doing. This internship can be granted only after the credentials have been approved by the board, so that the person may eventually be licensed to practice in the state. That is where this weakness comes in the internship business. If the credentials are inadequate, the person may not enter a hospital for internship in Pennsylvania. Examination means written examination and bedside examination or practical examination of each one of these candidates.

DR J. C. SIMPSON, Montreal. Will the Federation, in considering this matter, please take into consideration the fact of the very close linking of the Canadian schools with those in the United States taking cognizance of the fact that the same assessing agencies the same inspection agencies cover education in the two countries and perhaps try to differentiate to some degree, at any rate between the Canadian schools and those in Europe.



DR H M PLATTER, Columbus, Ohio In Ohio we have gone as far as we can, without additional legislation, to meet this vexatious problem. Our attorney general tells us that we cannot enact resolutions which are legal and binding beyond the purview of a statute, but we can elaborate on the statute and tell how an individual from a foreign country may meet and submit credentials that are the equivalent of what we demand here.

DR L J KOSMINSKY, Texarkana, Ark In Arkansas we have two boards, the regular and the eclectic. I represent the regular. The regular, by resolution, since 1928 has required a man to be a citizen of the United States to take the board examination.

DR THOMAS J CROWE, Dallas, Texas Texas is a border state, and it is easy to cross the Rio Grande River. Sometimes one can wade it in most places. I believe we have enough of certain types of foreign graduates in the United States, and I don't think we should prepare the way for more. Mexico won't allow us in there at all, and I don't see why we should take Mexican graduates.

(To be continued)

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

ALABAMA Montgomery June 28 Sec Dr J N Baker 519 Dexter Ave Montgomery

ARKANSAS Basic Science Little Rock June 4 Sec Mr Louis E Gehauer 701 Main St Little Rock Medical (Regular) Little Rock June 21 Sec State Medical Board of the Arkansas Medical Society Dr L J Kosminsky Texarkana Medical (Eclectic) Little Rock June 21 Sec Dr Clarence H Young 1415 Main St Little Rock

CALIFORNIA Reciprocity San Francisco May 11 Los Angeles July 11 San Francisco Sept 14 and Los Angeles Nov 16 Written examinations San Francisco June 27 30 Los Angeles July 11 14 and Sacramento Oct 17 20 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

CONNECTICUT Basic Science New Haven June 11 Prerequisite to license examination Address State Board of Healing Arts 1895 Yale Station New Haven

DELAWARE Dover July 12 14 Sec. Medical Council of Delaware Dr Joseph S McDaniel 229 S State St Dover

DISTRICT OF COLUMBIA Basic Science Washington June 27 28 Medical Washington July 11 12 Asst Sec Commission on Licensure Mr Paul Foley 203 District Bldg Washington

FLORIDA Jacksonville June 13 14 Sec Dr William M Rowlett Box 786 Tampa

GEORGIA Atlanta June Joint Sec State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

ILLINOIS Chicago June 28 July 1 and Oct 18 20 Superintendent of Registration Department of Registration and Education Mr Homer J Byrd Springfield

INDIANA Indianapolis June 21 23 Sec Board of Medical Registration and Examination Dr J W Bowers 301 State House Indianapolis

KANSAS Kansas City June 7 8 Sec Board of Medical Registration and Examination Dr J F Hrysig 905 N 7th St Kansas City

KENTUCKY Louisville June 8 10 Sec State Board of Health Dr A T McCormack 620 S 3rd St Louisville

MARYLAND Medical (Regular) Baltimore June 21 24 Sec Dr John T O'Mara 1215 Cathedral St Baltimore Medical (Homeopathic) Baltimore June 21 22 Sec Dr John A Evans 612 W 40th St Baltimore

MICHIGAN Ann Arbor and Detroit June 13 15 Sec Board of Registration in Medicine Dr J Earl McIntyre 202 34 Hollister Bldg Lansing

MINNESOTA Minneapolis April 19 21 Sec Dr Julian F Du Bois 350 St Peter St St Paul

MISSISSIPPI Jackson June Vest Sec State Board of Health Dr R N Whitfield Jackson

NEBRASKA Basic Science Omaha May 3 4 Medical Omaha June 8 9 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

NEVADA City on City May 2 Sec Dr John E Worden Capitol Bldg Carson City

NEW JERSEY Trenton June 21 22 Sec Dr James J McGuire 28 W State St Trenton

NEW YORK Albany Buffalo New York and Syracuse June 27 30 and Sept 19 22 Chief Professional Examinations Bureau Mr Herbert J Hamilton 315 Education Bldg Albany

NORTH CAROLINA Raleigh June 13 Sec Dr B J Lawrence 503 Professional Bldg Raleigh

NORTH DAKOTA Grand Forks July 5 8 Sec Dr G M Williamson 41 S 3rd St Grand Forks

OKLAHOMA Basic Science Oklahoma City May 4 Sec of State Hon Frank C Carter State Capitol Bldg Oklahoma City Medical Oklahoma City June 8 9 Sec Dr James D Osborn Jr Frederick

OREGON Basic Science Corvallis July 16 and Portland Nov 19 Sec State Board of Higher Education Mr Charles D Bryne University of Oregon Eugene

PENNSYLVANIA Philadelphia and Pittsburgh July Sec Board of Medical Education and Licensure Dr James A Newpher 400 Education Bldg Harrisburg

SOUTH CAROLINA Columbia June 28 Sec Dr A Earle Booser 505 Saluda Ave Columbia  
SOUTH DAKOTA July 19 20 Director of Medical Licensure Dr B A Dyar State Board of Health Pierre  
TEXAS San Antonio June 20 22 Sec Dr T J Crowe 918 Mer cantile Bldg Dallas  
VERMONT Burlington June 15 17 Sec Board of Medical Registration Dr W Scott Nay Underhill  
VIRGINIA Richmond June 22 24 Sec Dr J W Preston 30 1/2 Franklin Road Roanoke  
WISCONSIN Milwaukee June 28 July 1 Sec Dr Henry J Gramling 2203 S Layton Blvd Milwaukee  
WYOMING Cheyenne June Sec Dr G M Anderson Capitol Bldg, Cheyenne

### NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL April 9 page 1218

### Texas November Examination

Dr T J Crowe, secretary, Texas State Board of Medical Examiners, reports the written and practical examination held at Wichita Falls, Nov 8-10, 1937. The examination covered 12 subjects. An average of 75 per cent was required to pass. Sixteen candidates were examined, 10 of whom passed and six failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Georgetown University School of Medicine	(1936)		76.3
University of Minnesota Medical School	(1936)		77.2
Albert Ludwigs Universität Medizinische Fakultät Freiburg	(1921)		88.4*
Friedrich Wilhelms Universität Medizinische Fakultät Berlin	(1930) 86.2*	(1936)	78.6*
Ludwig Maximilians Universität Medizinische Fakultät München	(1932)		84.4*
Magyar Királyi Pazmany Petrus Tudományegyetem Orvosi Fakultása Budapest	(1922)		78.2*
Licentiate of the Royal College of Physicians of the Royal College of Surgeons Edinburgh and of the Royal Faculty of Physicians and Surgeons Glasgow	(1937)		75
Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow	(1936)		78.1*
Osteopath†			79.3

School	FAILED	Year Grad	Per Cent
Albert Ludwigs Universität Medizinische Fakultät Freiburg	(1913)		71*
Escuela Medico Militar, Mexico D F	(1928)		64*
Universidad Nacional Facultad de Medicina Mexico D F	(1936) 70.1* (1937) 62.6*	(1928)	61.8*
Osteopath†			68.3

Eighty-nine applicants were licensed by reciprocity on November 10 and December 10. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Arkansas School of Medicine	(1933) (1934) (1936 2) (1937 2) Arkansas	(1932 2)	
Chicago Medical School	(1935)	(1937 2)	Illinois
Northwestern University Medical School	(1935) (1936) Illinois	(1929)	Michigan
Rush Medical College	(1934)	(1934)	New York
University of Illinois College of Medicine	(1937)	(1937)	Illinois
Indiana University School of Medicine	(1934)	(1934)	Indiana
State University of Iowa College of Medicine	(1933)	(1933)	Iowa
University of Kansas School of Medicine	(1931)	(1931)	Kansas
University of Louisville Medical Department	(1909)	(1909)	Illinois
Louisiana State University Medical Center	(1936) (1937)	(1937)	Louisiana
(1937) North Carolina			
Tulane University of Louisiana School of Medicine	(1929)	(1929)	
(1934 2) (1936 2) (1937 3) Louisiana			
College of Physicians and Surgeons of Baltimore	(1915)	(1915)	Maryland
University of Maryland School of Medicine	(1908)	(1908)	N Carolina
University of Maryland School of Medicine and College of Physicians and Surgeons	(1934)	(1934)	Maryland
University of Minnesota Medical School	(1936)	(1937)	Minnesota
Washington Univ. School of Medicine	(1933) (1934)	(1935)	Missouri
Creighton University School of Medicine	(1925)	(1925)	Nebraska
(1932) New Jersey (1935) California			
University of Nebraska College of Medicine	(1927)	(1932)	Nebraska
(1933) Iowa (1936) Maryland			
Albany Medical College	(1898)	(1898)	New York
Long Island College Hospital	(1906)	(1906)	New Jersey
Univ of Buffalo School of Medicine	(1918) (1927)	(1932)	New York
University of Rochester School of Medicine	(1930)	(1930)	Maryland
University of Cincinnati College of Medicine	(1934 2)	(1934 2)	Ohio
University of Oklahoma School of Medicine	(1935 2)	(1936)	Oklahoma
University of Oregon Medical School	(1927)	(1927)	Oregon
University of Tennessee College of Medicine	(1934)	(1935)	Tennessee
Vanderbilt University School of Medicine	(1923)	(1923)	Tennessee
(1933) Mississippi			
University of Virginia Department of Medicine	(1933)	(1933)	Virginia
Univ of Toronto Faculty of Med	(1923) Minnesota	(1928)	Oregon
Osteopath‡ Iowa 6 Kansas Michigan 2 Missouri 8 New Mexico			

\* Verification of graduation in process

† Examined in medicine and surgery

‡ Licensed to practice medicine and surgery

## Book Notices

**The Rehabilitation of Speech. A Textbook of Diagnostic and Corrective Procedures.** By Robert West Ph.D. Professor of Speech Pathology, University of Wisconsin; Lou Kennedy Ph.D. Associate Professor of Speech, Brooklyn College, New York; and Anna Carr M.A. Clinical Adviser in Speech, State Teachers College, Milwaukee, Wisconsin. Cloth. Price \$4. Pp. 475 with 28 illustrations. New York & London: Harper & Brothers, 1937.

The repetitional features of most books on the subject of speech disorders causes them to be placed in the category of academic interest for only a brief time. This book is different, because the arrangement of material is original and tends to meet in a practical way the specific needs of an ever widening specialty. It covers the field of speech disorders in a comprehensive manner. The material is divided into five main parts. Part one is a creditable effort. Under the general heading of diagnostic procedures, the neurophysiologic mechanism for speech is briefly covered so that the reader is technically prepared for both normal and abnormal speech development. Then follow those speech disorders which fall into the category of abnormal psychology, psychopathology or psychiatry, that is those which have no organic or structural basis. Although the authors consider stuttering a psychogenic disorder, they also state that, "while psychogenic disorders are undoubtedly functional in nature, they are nevertheless more prevalent among children showing poor physiological and neurological stability." They point out the fact, under hereditary background that "the condition underlying the stuttering is transmitted from parent to offspring by biological heredity." They further point out that the stutterer has a special makeup, "a type of constitution that, though rugged, is not suited to the exigencies of social life," and that a secondary phase of stuttering is the reaction of the patient toward his stuttering speech, which ultimately warps his whole personality and leads to the development of a definite neurosis—an anxiety neurosis. The chapters which follow deal with dyslalias caused by mouth deformities such as cleft lip, cleft palate and dental anomalies. Under "Rhinolalia Caused by Nasal Obstruction" the authors advocate the use of Dr. Russell's term, "cul-de-sac resonance." Since the quality of tone known as nasality is the result of resonance in a cul-de-sac resonator, it would be better to refer to this quality as "cul-de-sac resonance" than as "nasal resonance." This is a practical suggestion which should be appreciated by vocal and speech teachers. Another chapter deals with vocal defects caused by pharyngeal and laryngeal deformities. It tells briefly, both etiologically and therapeutically, about many dysphonias of importance to the speech pathologist. There is a clear and informative chapter on neuropathologies of speech spastics, and the speech involvement of the feeble-minded is also briefly touched on. Dyslalias caused by deficiencies of hearing are extensively treated so that the student gets a concise working knowledge of the entire field of hearing defects, and the authors conclude part one with a chapter on case study and diagnosis, which should prove of practical value to speech practitioners.

Part two is given over to remedial procedures for older children and adults. The authors outline types of speech clinics and the characteristics which the clinician should possess. There are the usual general exercises for the tongue, lips and velum, and several chapters describing the articulatory adjustments for special articulatory defects. There is also a discussion on the therapy of the stutterer. Various phases of remedial procedures are given, but as in most cases—since the subject is of such an intangible and personal nature—they still leave much to be desired. The remainder is devoted to therapy for cleft palate speech, rhinolalia, vocal disturbances, spastic speech and speech defects of the feeble-minded. Part three gives remedial procedures in the form of exercises and drills for cases of omissions and substitutions of sound units in the speech of children. Part four is a treatise on foreign language influence. The factors in the retention of a foreign accent are pointed out, and the usual measures are outlined to counteract the various oral inaccuracies. Part five deals with speech reading, that is, the teaching of oral speech to the deaf. The

few exercises for lip reading are given in phonetic transcriptions to secure accurate symbolization of sounds.

Following these five major parts, the book has an appendix containing a number of practical features which should prove of value to the teacher and student of speech. There are, in addition, clear and instructive illustrations throughout the book. The twelve plates showing the position of the articulators, however, would perhaps be of more interest to the reader if they were in color. In black and white they are drab and detract from the appearance of the book. The authors deserve special commendation for excluding controversial matters. By so doing, the distracting controversy which has long centered around handedness in connection with stuttering is eliminated. Therapeutic measures, however, should have had more elaboration, and issue should be taken with the statement made on page 64 that "the adult stutterer who has developed the psychoneurotic aspect of dysphemia is likely to continue to stutter the rest of his life." This does not coincide with the experience of others in this special field. Here and there a little more detail in less technical terminology would have proved more helpful to the student who has not received special speech training. Also fewer phonetic symbols should have been employed. While phonetic symbols have their place in a book such as this, readers unfamiliar with them will find their excessive use confusing rather than clarifying. Naturally, any work of this type is rather heavy, but this book seems unnecessarily so as though in their desire to be technical and scientific the authors overcompensated. This, however, does not alter the fact that as a textbook of diagnosis and corrective procedures "The Rehabilitation of Speech" will undoubtedly fill a long-felt need.

**Diseases of the Skin. A Manual for Students and Practitioners.** By the late Robert W. MacKenna M.A. M.D. Ch.B. Fourth edition revised and enlarged by Robert W. B. MacKenna M.A. M.D. M.R.C.P. Honorary Dermatologist, Royal Southern Hospital, Liverpool. Cloth. Price \$3. Pp. 557 with 234 illustrations. Baltimore: William Wood & Company, 1937.

The arrangement of the material is in twenty-six chapters, the scheme in the main etiologic beginning with anatomy, physiology, examination and treatment followed by descriptions of coccid tuberculous protozoal fungous, parasitic and virus diseases of the skin and terminating with discussions of diseases especially affecting the hair, fat glands and sweat glands, pigmentary anomalies, "tumours" and finally diseases of the nails. The type is large and easy to read. It is written for the medical student and general practitioner, its four paragraphs, less than one page on pathology will not help a candidate for the American specialty examinations. All common dermatoses are described satisfactorily and in a practical manner. Sabouraud is followed in the consideration of streptococcal dermatoses, under the title of "Subacute and Chronic Forms of Impetigo" as has recently been stressed by James H. Mitchell in this country. Tuberculosis is well presented, in part, of course, because it is common in Great Britain. Sebauminous disease, the primary skin complex, the usually negative tuberculin reaction in sarcoid, the salt free diet and treatment by physiotherapeutic agents are all appropriately discussed. The photographs are good but not excellent—the author would learn from George Miller Mackee and Howard Fox—but the colored plates should be the envy of American writers, who cannot get publishers to pay for them. Neither Sutton's nor Ormsby's textbook is comparably embellished. The style of positive statement, direct and brief, is an advantage to the beginner. Some sentences are intentionally bald and so stick in the memory concerning the Wassermann test. "The reaction is not a specific test for syphilis, a fact profitably retained. As J. Gardner Hopkins recently said, nobody knows what the Wassermann reaction is or what causes it. Treatment of syphilis by course with rest periods characteristically not American will vary in my one familiar with the conclusions of the Cooperative Clinical Group. References to recent journal articles are few but selected. They are almost all in English and the majority are British. Altogether, the book is a sound compilation of basic dermatology well written well illustrated no more desirable as to its content than other works and, on its representation of a particular school of thought. Next to Mackee's more pretentious work it is the best of the British textbooks."

**The Microtommist's Vade Mecum (Bolles Lee)** A Handbook of the Methods of Animal and Plant Microscopic Anatomy Edited by J Bronte Gatenby M A Ph D BA Professor of Zoology and Comparative Anatomy Trinity College Dublin and Theophilus S Painter A B A M Ph D Professor of Zoology Texas University Austin Texas and others Tenth edition Cloth Price \$9 Pp 784 with 11 illustrations Philadelphia P Blakiston's Son & Co Inc 1937

For fifty years Bolles Lee's book has been widely used in histologic and embryologic laboratories. It continues to be a standard and convenient reference work for the research laboratory. The present editors have tried to widen its scope by adding a brief outline of technical procedures, but the encyclopedic character of the work makes it unsuitable for beginners especially as there are several good elementary manuals available. Bolles Lee personally tested every method he thought worth including in his book. Dr Gatenby finds this impracticable at the present time, so many new methods have been accepted on the authority of those who have described them. On the other hand he has added critical discussions of certain cytologic problems in fixation and staining which should clarify the situation. There are still many biologists who believe that staining methods have the specificity of qualitative chemical tests. A careful reading of these discussions should make obvious the inadequacy of the technical procedures such misguided workers have used. The size of the book was rigidly kept down in the first seven editions of Lee. In this edition the book is 50 per cent larger than in the seventh. Ninety-eight pages on botanic methods (by D G Gatcheside) have been added, as well as sixteen pages on vital staining (R J Ludford). A new chapter on chromosome methods has been written (T S Painter). The sections on general and special techniques have been amplified in many ways. The new treatment of fatty substances (by W W Kay and R Whitehead) is especially commendable. Naturally there are regrettable omissions. There is no mention of the newer silver on-the-slide methods which have made it possible to obtain impregnations in well fixed material free from the numerous artefacts of the silver in the block procedures. The work continues to be well edited and printed, now it has a water and vermin proof binding to boot.

**Handbuch der Artefakte Morphologische und funktionelle Simulationen und Dissimulationen** Herausgegeben von Dr med Julius Mayr o Unt versitätsprofessor und Direktor der Dermatologischen Klinik und Poliklinik der Universität Münster (Westf) et al Paper Price 22 marks Pp 470 with 135 illustrations Jena Gustav Fischer 1937

The authors present a thorough analysis of the various types of malingering (simulation and dissimulation) so often resorted to for purposes of gain by individuals of normal psychic make up and by patients of psychopathic constitution. The work is divided into eleven sections, with a number of subheadings. Hermann Stefan discusses simulation and dissimulation in psychiatry and neurology. A general discussion of this subject matter is presented and is followed by the description of the psychologic and psychopathic substrata for self-inflicted wounds and self mutilation. Case histories of individuals of sound mind, of congenital inferiority and of patients suffering from the symptom complex of epilepsy, schizophrenia and hysterical habitus augment the text. A thorough index and a summary of the material presented concludes the chapter. The second division of the work is contributed by Julius Mayr. Forty-one well executed photographic illustrations embellish the text. It deals particularly with skin lesions produced by malingerers. Illuminating case histories are recorded. The methods resorted to by patients to produce various pathologic states their morphology, the differential diagnosis and the treatment are described. The author calls particular attention to simulations resorted to by those in military service. Venereal disease artificially produced is described. A thorough bibliography is appended. The other divisions of the work describing simulations of diseases in the region of the neck, nose and throat (Wilhelm Berger), simulation of diseases and functional aberrations of the eye (Oswald Marchesani) and those of internal diseases (E W Baader) are written in the same engaging manner as the preceding chapters. Simulation of drunkenness, lead poisoning, silicosis, diabetes, disease of the gastro intestinal tract and respiratory diseases are discussed. Chapter 6 (Carl Ludwig Gross) is of particular interest to the surgeon. Here are described methods used by malingerers to produce a large

variety of conditions, including artificial inguinal hernia, prolapse of the rectum, rectal fistula, injuries to the sex organs, diseases of the genito-urinary apparatus, artificial tumors, artificially produced subcutaneous emphysema, diseases of the joints, mutilation and injuries of portions of the extremities, artificially produced inflammations and phlegmons, introduction of foreign bodies into the gastro-intestinal tract and other portions of the body, production of ulceration, gunshot wounds, artificial swellings and simulation of diseases of the stomach and lungs. All these make interesting and informative reading. F Siegert contributes an excellent chapter on simulations and dissimulations in gynecology. Otto Ullrich is the author of artificial clinical manifestations in childhood (chapter 8). The work concludes with the medicolegal aspects of the questions discussed, supplemented by an author's index and a good general index. The work can be highly recommended to the general practitioner, specialist and surgeon and particularly to those who are engaged in work which may require the rendering of opinions before industrial boards, insurance companies and in courts of justice, besides being informative from the general educational point of view and affording food for reflection on the ingenuity of the human mind to gain an end.

**Lipogenesis in the Animal Body with Special Reference to the Physiology of the Goose** By Francis G Benedict Director Nutrition Laboratory Carnegie Institution of Washington and Robert C Lee Carnegie Institution of Washington Publication No 489 Paper Pp 232 with 30 illustrations Washington D C Carnegie Institution of Washington 1937

This monograph presents the gathered ends of twenty-three years of sporadic investigation at the Carnegie Nutrition Laboratory on the metabolism of the goose, particularly with reference to the problem of fat formation. The collected work represents a mountain of labor and investment and the outcome appears to be a not very large body of new fact. The only new conclusion of fundamental significance, which is unfortunately supported by relatively meager data, seems to be that, contrary to expectation, one finds no difference in the calorific equivalent of oxygen by comparison of direct and indirect calorimetry, regardless of whether carbohydrate is being burned or being laid down as fat. This statement is in reality a denial of the laws of thermodynamics and is inherently improbable. It is supported by a scanty five observations which vary by 5 per cent among themselves, whereas the expected difference in the particular experiments is just about this amount. No statistical treatment is given but a rough statistical calculation shows that the authors are absolutely unjustified in their deduction. The final conclusion of the authors of the monograph may be quoted in their own surprising words. As a result of our experience with direct calorimetric measurements on geese during surfeit feeding of carbohydrate which showed essentially negative results so far as the presence of exothermic heat is concerned, we believe that any further direct calorimetric observations on animals would be unprofitable and their final sentence, "As a result of our experience with geese we would not recommend any further direct calorimetric measurements." As a private recommendation to the regulating body of the Carnegie Institution with regard to the program of the Nutrition Laboratory this may be a valid suggestion, but as a dictum for other investigators it is absurd. The deductions from the experiments presented in the monograph in reality throw out a sharp challenge to a new generation of biophysicists to improve existing techniques so that the applicability of the laws of thermochemistry to biologic systems carrying on such processes as fat synthesis can be adequately tested in more than five experiments and with a random error of less than the order of magnitude of the differences expected.

One suspects that the laws of thermodynamics cannot be dismissed as summarily as Benedict and Lee have dismissed them. It might be inferred by the reader that Benedict and Lee labored under the delusion that what was impossible with their skill and with the resources of the Carnegie Institution simply could not be done. One recalls the classic prediction of Müller that the velocity of the nerve impulse could never be measured ten years before Helmholtz performed the feat. Benedict and Lee have not said that the laws of thermodynamics will never be shown to apply fully in the living organisms.

but they have advised against trying to establish such applicability. Especially since they have said in essence (p. 231) that in practice one should deny the applicability of thermodynamics to lipogenesis, these authors are open to strong censure for their uncritical attitude as regards their own experiments and reasoning.

After urging that all direct calorimetry on animals be abandoned, the authors grudgingly admit that such work on pathologic human beings might still be useful. How the latter can be worth while when the former is not is difficult to comprehend. The remark might be interpreted as a means of escape from criticizing the Russell Sage calorimeter work while insisting that all the animal work that could profitably be done is now complete. In certain other respects the book is worth while. The analysis of the effects of feeding and the influence of obesity on the total metabolism are valuable. The added proof that stored fat is not without effect in raising the total energy expenditure of the organism is important to medicine. The studies of heart rate and other general physiologic phenomena are contributions to comparative physiology.

*Statistical Methods Applied to Experiments in Agriculture and Biology* By George W. Snedecor, Director of the Statistical Laboratory of Iowa State College, Ames, Iowa. Cloth. Price \$3.75. Pp. 341 with illustrations. Ames, Iowa: Collegiate Press, Inc., 1937.

The proper understanding of statistical methods in biology and medicine appears extraordinarily difficult to most physicians. Hence investigations requiring a statistical presentation are often unsatisfactorily prepared, the problem is dodged, or the figures are merely supplied to a "statistical expert." The author of this volume believes that an advanced mathematical training for the use of the statistical method is not necessary. This book is therefore designed for an individual to study by himself. The material is divided into chapters on the various elements of the statistical method, namely, attributes, individual comparison, group comparison, short cuts, regression, correlation and analysis of variants. Each point is illustrated by examples of graduated difficulty. Although the material constitutes difficult reading for most physicians, the book has something definite to offer to those who have the time and interest to devote to unaccustomed studies.

*Die Lungenerkrankung der Paprikaschäler* Von Dr. Franz v. Kovats, o. Professor, Vorstand der städt. Lungenfürsorgestelle in Szeged (Ungarn). Tom. VIII, Fasc. 1, Acta litterarum ac scientiarum reg. Universitatis Hung. Francisci Josephinae, Sectio Medicorum, Boards. Price 4 marks. Pp. 92 with 35 illustrations. Budapest: Eggenbergersche Buchhandlung, Karl Renyi, Leipzig: Johann Ambrosius Barth, 1937.

The pulmonary diseases of paprika cutters exhibit a peculiar form previously unknown pathologically. The first case of a paprika cutter having a lung disease was observed for a period of six years without information being obtained that would lead to the discovery of the real cause or causes of the phenomena. The need for a comprehensive study led the author to a thorough investigation of the various factors involved in the disease. He has collected all available information on the known cases and investigated the accompanying circumstances. The relationship is shown among the various pathologic conditions. The dissertation starts with a discussion of the varieties of mold growing in paprika and the causes of illness of paprika cutters. The author believes that the disease is due to the development of a mold fungus accompanied by numerous spores. This is based on the finding of fungous infection in the lung. These spores cause catarrh of the air passages which in turn leads to acute forms such as bronchitis and exudative bronchiolitis. In a short time a subacute condition appears characterized by a treelike formation and changes of the costal pleura. It is stated that the chronic disease appears after about ten days. The end results consist in a spreading fibrosis and bronchiectasis. Symptomatology and diagnosis, illustrated by roentgenograms, are followed by a discussion of the pathologic conditions for about 200 individual cases. The various forms of the illness are described under the headings (1) acute, (2) subacute and (3) chronic. Acute conditions include bronchitis and peribronchitis, which cannot be differentiated by x-ray plates. Congestion of a catarrhal type and exhaustive bronchiolitis are considered next. Numerous plates illustrate the

various forms. It is stated as a general theory that the numerous manifestations of the chronic form can be seen only after an exposure of approximately ten years. The separate chapters that follow are on complications, differential diagnosis and prognosis. The book closes with two pages devoted to prophylaxis and therapy.

*The Surgery of the Sympathetic Nervous System* By George L. Caia, CMG, DSO, FRCS, Consulting Surgeon, St. Bartholomew's Hospital, London, and J. Paterson Ross, MS, FRCS, Professor of Surgery, University of London. Second edition. Cloth. Price \$1.50. Pp. 191 with 50 illustrations. Baltimore: William Wood & Company, 1937.

That this little monograph on so specialized a subject should have met with a demand for a second edition within less than three and one-half years is ample evidence of its value to the medical profession. So enthusiastic a reception for a work of this type is surprising. The authors have adhered closely to their title. The clinical history of the diseases with which they deal finds little place here. The book presupposes a thorough knowledge of the conditions under discussion. The unformed will find little to aid them in diagnosing their cases. Differential diagnosis is not considered. The authors' sole concern in this direction is with selection of cases for operation from among those already recognized and classified. The discussion of the anatomy and physiology of the sympathetic nervous system is minimal, being restricted to that absolutely demanded by their discussion of surgical procedures. The discussion of the surgery of the sympathetic nervous system is sound and conservative with the possible exception of three minor sections dealing with the relief of dysmenorrhea and of vesical and renal pain, with which the authors seem to have had little or no experience. At least they cite none of their own experiences and uncritically accept a number of unduly enthusiastic reports from the literature. In this connection it is to be noted that the authors recommended that only cases of dysmenorrhea "of the spasmodic type" be submitted to sympathectomy and that "the operation should never be performed for the congestive type" without any indication as to how this differentiation is to be made. It is of interest that the authors have accepted completely Lewis's views as to the pathophysiology of Raynaud's disease. But in so doing they have ignored all evidence antagonistic to this view, even that present in their own observations reported in these pages. It is also noteworthy in connection with this uncritical attitude that their statement on page 113 relative to Raynaud's disease, that although sympathectomy does not result in a vasodilatation comparable to the normal state "the sympathectomy enables the vessel lumen to remain open when exposed to a degree of cold which was previously sufficient to close it," their own observations presented in figure 39, page 111, are to the effect that the degree of vasoconstriction, as indicated by surface temperature, was greater (not less) under identical conditions following the sympathectomy than it was before. The authors' attitude in general toward ganglionectomy in the treatment of Raynaud's disease of the upper extremities is favorable to a degree not compatible with the experience of other surgeons. In the main the book is sound. It is clearly and concisely written, the typography is excellent and the illustrations are good. There is a satisfactory index.

*Verzügerte Knochenbruchheilung und Pseudarthrosenbildung ihre Ursachen und Behandlung* Von Prof. Dr. Georg Brandt, Vorstand der chirurgischen Klinik des städtischen Krankenhauses, Mainz. Paper. Price 13.50 marks. Pp. 170 with 223 illustrations. Leipzig: Georg Thieme, 1937.

The author offers a concise but exhaustive presentation of the subject. The first chapter is devoted to the histologic course of normal bone healing and such variations of it as lead to the development of aberrations and deficiencies, the observation being based largely on Lever's views on pseudarthrosis. The next chapter is devoted to the pathologic description. The author discusses the causes of nonunion from the constitutional and nutritional from the general as well as from the local point of view. There is nothing new offered in the chapters on the general causes. From the local point of view some interesting features are discussed, important mechanical dynamic factors particularly disturbance and imbalance of stresses are cited as predisposing factors or as causative agencies. Here an interesting feature is the discussion of the mutual influence

of the parallel forearm bones on the formation of transformation zones and pseudarthroses, the influence of the fibula on pseudarthrosis formation, and healing of the tibia. The chapter on treatment reviews the usual osteoplastic methods and adds a few less well known items. Of interest is the application of osteotomy on the neighbor bone in the treatment of pseudarthrosis of the forearm, the block action of the fibula, and the effect of the osteotomy of it on healing of the pseudarthrotic tibia. The last chapter is devoted to the description of casts and braces and supportive apparatus. The volume does not contain a great deal of new facts but is well written and concise. It should be of particular value to the general surgeon who is interested in reconstructive work on the bones.

**The Practitioners Library of Medicine and Surgery Volume XII Preventive Medicine and Hygiene** Supervising Editor George Blumer M. D. David P. Smith Clinical Professor of Medicine Yale University School of Medicine Associate Editor Ira V. Hiseock M. A. C. P. H. Professor of Public Health Yale University School of Medicine Cloth Price \$10 Pp 993 with 45 illustrations New York & London D. Appleton Century Company Incorporated 1937

The twelfth volume of the Practitioners Library of Medicine and Surgery is a sound, composite textbook on preventive medicine and hygiene. Such a book is of the greatest importance in rural medical practice. After a discussion of periodic physical examination there are special chapters dealing with water, clothing, exercise and rest, excretions, sunshine, cleanliness and personal mental hygiene. The second portion of the book concerns preventive medicine as it applies to groups of human beings, the third section deals with community health, the fourth section covers the prevention of infectious diseases, as well as the diseases of the various systems of the human body. All the men selected to prepare various portions of this book are writers who have had special training and interest in the topics they discuss. The book is practical, authoritative and obviously a fundamental addition to this system of medicine and surgery.

**Short Years The Life and Letters of John Bruce MacCallum M. D. 1876-1906** By Archibald Malloch Cloth Price \$3.50 Pp 343 with 15 illustrations Chicago Normandy House 1938

John Bruce MacCallum, brother of Dr. W. G. MacCallum, was born June 8, 1876, and died in 1906—just 30 years of age. After studying at the University of Toronto and Johns Hopkins, he traveled to Germany for postgraduate study. He returned broken in health and much of the rest of his brief career was spent in search of recovery. He was in Denver as a teacher of anatomy and at the University of California, where he worked with Jacques Loeb. In 1905 he acquired a severe albuminuria which, associated with extensive chronic tuberculosis, resulted in his death. Dr. Archibald Malloch has written the biography of the man largely by the use of his letters and poems. For those who knew him and who knew the families of Osler, Malloch and MacCallum, this book will constitute a beautiful as well as a most interesting volume of memory and reminiscences.

**Über sogenannte kosmische Rhythmen beim Menschen** Von Professor Dr. B. de Rudder Direktor der Universitäts-Kinderklinik Frankfurt a. M. Paper Price 1.80 marks Pp 46 with 2 illustrations Leipzig Georg Thieme 1937

The author expounds the possible effect of cosmic influences on man. He does not mean occult phenomena but geophysical effects and considers this new field of study bioclimatic or meteorobiologic. Many influences of an extraterrestrial nature are mentioned as theoretical possibilities, but no actual correlations are given between them and variations in man. His proposed field is one in which Peterson has long worked (*The Patient and the Weather*) but the author is unacquainted with this work.

**Poisoning the Public Daily Contacts with Toxic Materials as Civilization Marches on** By Russell C. Erb Cloth Price \$2.15 Pp 219 Philadelphia Dorrance & Company 1937

The author of this book has tried to survey the field of toxicology as it relates to contact with poisonous substances in water, food and atmosphere, in flora and fauna, in the household, in industry and even in war, all this in a small volume intended for the public. Unfortunately the work is poorly organized and clumsily written. It contains many errors of fact,

judgment and interpretation too numerous for specific citation. It is likely chiefly to frighten the "daylights" out of the average layman, without giving him a sufficient background of accurate information. The layman should know the potential sources of intoxication and how to avoid them; he should be able intelligently to support legislation designed to remove many of the current menaces to health. But it will require a more adequate study than this to give him a reasonable understanding of this important subject.

**A Meandering Hoosier** By Hugh A. Cowing M. D. Cloth Price \$2.15 Pp 257 with 61 illustrations Muncie Indiana Scott Printing Company 1937

In this book Dr. Hugh A. Cowing has assembled his personal impressions of many interesting places which he has visited, some marvelous reproductions of photographs, and some miscellaneous poems developed in connection with his travels. Other physicians who have traveled the path that he has followed and who are interested in medical belles lettres will find the book interesting and entertaining.

**Tenth Annual Report of the Missouri Workmen's Compensation Commission** The Statistical Year of 1936 and Operating Year of 1937 Paper Pp 20 Jefferson City Missouri [n. d.]

The number of accidents in 1937 was 73,741, compared with 70,243 in 1936. The Missouri workmen's compensation law has been in operation since January 1927, and during the period from January 1927 to January 1937 "729,209 cases were reported to the Commission on which \$24,710,961.99 was authorized in compensation and \$11,269,835.62 in medical aid—a total of \$35,980,797.61."

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Workmen's Compensation Acts Accidental Injury Defined**—As the workman, in the course of his employment, was loading cartons of bread weighing from 35 to 40 pounds each, he turned suddenly to get a better hold on one carton and felt a sharp pain in his left side. It gave him a sickening feeling all over, especially in the stomach, and he was compelled to sit down for twenty or thirty minutes until the nausea passed away. He had bearing down pains thereafter and that night he discovered a hernia on the left side. In resisting his claim for compensation before the industrial commission of Utah, his employer's insurance carrier contended that, although the injury in question occurred suddenly, undesignedly and unexpectedly at a definite time and place, yet it could not be termed an accidental injury within the meaning of the workmen's compensation act unless there was present evidence of strain or overexertion, in the absence of some unforeseen or unusual happening, and that there was no evidence in the present case of strain or overexertion. The industrial commission, however, awarded compensation to the workman and an appeal was taken to the Supreme Court of Utah.

The word "accident" as used in the workman's compensation act said the court, is not limited to any arbitrary, legal, technical or contractual meaning nor to things external to the person injured, as falling bodies, explosions, or breaking of equipment which in turn injures the workman. It includes also the injury to the workman himself. The injury is an accident when it results, not from the wear and tear on the body of the workman incident to long continued effort but when it occurs unexpectedly as a result of the work being done. There was evidence in this case, the court continued, that the employee sustained a hernia on the day in question, that the injury occurred suddenly and at a definite time and place that it was an unusual result of the work being done and that it did not result from a preexisting condition. To render an injury accidental within the workmen's compensation act does not require that the strain be such that other



men would not attempt it or would anticipate probable injury therefrom. It simply means that the effort exerted, considering the position in which the workman was put by the work being done at the instant of the injury, was such that an injury, unanticipated and unforeseen, resulted to the workman. The Supreme Court accordingly believed that the industrial commission was justified in its award of compensation and affirmed that award.—*Continental Baking Co v Industrial Commission (Utah)*, 69 P (2d) 268

**Malpractice Fecal Fistula Following Operation for Intestinal Obstruction**—Gross suffered severe abdominal pains and the defendant, assisted by two other physicians performed an exploratory operation to ascertain the cause of the pains. Adhesions of the bowel were discovered which had caused an obstruction. The obstruction was removed and the wound was closed. Several days after the operation the patient began to vomit fecal matter. This condition continued for seventeen or eighteen days, "when one of the intestines ruptured and through this rupture the contents of the bowels and stomach forced their way through the incision and, in the region of the navel, which was at the upper end of the incision, there was created an opening which is termed a fistula." Thereafter the contents of the bowels discharged through this fistula. The defendant attended the patient at the hospital for about a month and thereafter called at his home on several occasions over a period of about three weeks. He then seems to have discontinued his connection with the case. Thereafter for about two years the fistula continued and the plaintiff had no normal bowel movements. Subsequently another physician operated, found an obstruction in the bowel where the previous operation had been performed, and eventually the patient was restored to a normal condition. The patient then brought suit for malpractice against the defendant. The jury rendered a verdict for the plaintiff but the trial court entered a judgment in favor of the defendant notwithstanding the verdict. The plaintiff appealed to the Supreme Court of Washington.

The principal question before the Supreme Court was whether or not the evidence was sufficient to take the question of the defendant's negligence to the jury. From the evidence, the court concluded that the jury had a right to find that at the time of the operation there was no infection, that some days after the operation there was an obstruction of the bowel, and that the patient was discharged from the hospital at a time when he needed further medical attention. In addition to this, the fact that a subsequent operation was necessary, while not sufficient in itself to take the case to the jury was some evidence of negligence. A physician, continued the court, who undertakes an operation on a patient is not justified, after such operation, in ceasing to attend the patient while further care and treatment are necessary. Furthermore, there are instances where facts alone prove the negligence and where it is unnecessary to have the opinions of persons skilled in the particular science to show unskilled or negligent treatment. Nor is it necessary that a case of malpractice be proved by direct and positive evidence. It may be proved by a chain of circumstances from which the ultimate fact required to be established is reasonably and naturally inferable. The evidence in the opinion of the court, created such a chain of circumstances in this case.

Accordingly the Supreme Court of Washington in a five to four decision, reversed the judgment and remanded the cause to the trial court with directions to enter a judgment on the verdict for the patient.—*Gross v Parillo (Wash)* 68 P (2d) 1034

**Accident Insurance Death from Overdose of Barbitol**—Where an insured, the Supreme Court of Kansas holds, takes barbitol without suicidal intent intending to take the quantity that he does take but in ignorance of the fact that the amount taken is lethal, and dies therefrom his death results from accidental means within the meaning of an insurance policy providing double indemnity if death results solely from bodily injuries caused directly exclusively and independently of all other causes by external violent and purely accidental means.—*Spence v Equitable Life Assur Soc of United States (Kan)* 69 P (2d) 713

## Society Proceedings

### COMING MEETINGS

- Alabama Medical Association of the State of Mobile Apr 19 21 Dr D L Cannon 519 Dexter Ave., Montgomery Secretary
- American Academy of Pediatrics Del Monte Calif June 9 11 Dr Clifford G Grulee 636 Church St Evanston Ill Secretary
- American Association of Genito Urinary Surgeons Atlantic City N J, May 24 Dr Henry L Sanford 1621 Euclid Ave Cleveland, Secretary
- American Association of Industrial Physicians and Surgeons Chicago June 6 9 Dr Volney S Cheney Armour and Company Union Stock Yards Chicago Secretary
- American Association of Pathologists and Bacteriologists Atlantic City N J May 34 Dr Howard T Karsner 2085 Adelbert Road Cleveland Secretary
- American Association of the History of Medicine Atlantic City N J, May 2 Dr E J G Beardsley 1919 Spruce St Philadelphia Secretary
- American Association on Mental Deficiency Richmond Va Apr 20 23 Dr E Arthur Whitney Washington Road Elwyn Pa, Secretary
- American Bronchoscopic Society Atlantic City N J Apr 30 Dr Lyman Richards 319 Longwood Ave Boston Secretary
- American Dermatological Association Del Monte Calif June 9 11 Dr Fred D Weidman 36 Hamilton Walk Philadelphia Secretary
- American Gastro-Enterological Association Atlantic City N J May 23 Dr Russell S Boles 1901 Walnut St Philadelphia Secretary
- American Gynecological Society Asheville N C May 30 June 1 Dr Richard W TeLinde 11 East Chase St Baltimore Secretary
- American Laryngological Association Atlantic City N J May 24 Dr James A Babbitt 1912 Spruce St Philadelphia Secretary
- American Laryngological Rhinological and Otolological Society Atlantic City N J Apr 27 29 Dr C Stewart Nash 277 Alexander St Rochester N Y Secretary
- American Neurological Association Atlantic City N J May 26 Dr Henry A Riley 117 East 72d St New York Secretary
- American Ophthalmological Society San Francisco June 9 11 Dr Eugene M Blake 303 Whitney Ave New Haven Conn Secretary
- American Orthopedic Association Atlantic City N J May 35 Dr Ralph K Ghormley 110 Second Ave S W Rochester Minn Secretary
- American Pediatric Society Bolton Landing N Y June 9 11 Dr Hugh McCulloch 325 North Euclid Ave St Louis Secretary
- American Proctological Society San Francisco June 11 13 Dr Curtice Rosser 710 Medical Arts Bldg Dallas Texas Secretary
- American Psychiatric Association San Francisco June 6 10 Dr W C Sindy State Education Bldg Harrisburg Pa Secretary
- American Society for Clinical Investigation Atlantic City N J May 2 Dr J M Hayman Jr 2065 Adelbert Road Cleveland Secretary
- American Society of Clinical Pathologists San Francisco June 9 11 Dr A S Giordano 531 North Main St South Bend Ind Secretary
- American Surgical Association Atlantic City N J May 24 Dr Charles G Mixer 319 Longwood Ave Boston Secretary
- Arizona State Medical Association Tucson Apr 21 23 Dr D F Harbridge 15 East Monroe St Phoenix Secretary
- Arkansas Medical Society Texarkana Apr 18 20 Dr W R Brooksher 602 Garrison Ave Ft Smith Secretary
- Association for the Study of Allergy San Francisco June 9 10 Dr J Harvey Black 1405 Medical Arts Bldg Dallas Texas Secretary
- Association of American Physicians Atlantic City N J May 35 Dr Hugh J Morgan Vanderbilt University Hospital Nashville Tenn Secretary
- California Medical Association Pasadena May 9 12 Dr F C Warnshuis 450 Sutter Street San Francisco Secretary
- Congress of American Physicians and Surgeons Atlantic City N J May 34 Dr John T King Jr 1210 Eutan Place Baltimore Secretary
- Connecticut State Medical Society Groton June 12 Dr Creighton Barker 258 Church St New Haven Secretary
- District of Columbia Medical Society of the Washington May 45 Dr C B Conklin 1718 M St N W Washington Secretary
- Florida Medical Association Miami May 9 11 Dr Shaler Richard on 111 W Adams St Jacksonville Secretary
- Georgia Medical Association of Augusta Apr 26 29 Dr Edgar D Shanks 478 Peachtree St N E Atlanta Secretary
- Hawaii Territorial Medical Association Honolulu May 20 22 Dr Douglas B Bell Dillingham Bldg Honolulu Secretary
- Illinois State Medical Society Springfield May 17 19 Dr Harold M Camp Lahl Bldg Monmouth Secretary
- Iowa State Medical Society Des Moines May 11 13 Dr Robert L Parker 3510 Sixth Ave Des Moines Secretary
- Kansas Medical Society Wichita May 9 12 Mr C G Munns 112 West Sixth St Topeka Executive Secretary
- Louisiana State Medical Society New Orleans May 24 Dr P T Talbot 1430 Tulane Ave New Orleans Secretary
- Maryland Medical and Chirurgical Faculty of Baltimore Apr 26 27 Dr Walter Dent Wise 1211 Cathedral St Baltimore Secretary
- Massachusetts Medical Society Boston May 31 June 2 Dr Alexander S Begg 8 The Fenway Boston Secretary
- Mississippi State Medical Association Jackson Apr 19 21 Dr T M Dye McWilliams Bldg Clarlsdale Secretary
- Missouri State Medical Association Jefferson City May 24 Dr F J Goodwin 634 N Grand Blvd St Louis Secretary
- Nebraska State Medical Association Lincoln Apr 26 28 Dr R B Adams Center McKinley Bldg Lincoln Secretary
- New Hampshire Medical Society Manchester May 1 18 Dr Carlton R Metcalf 5 South State St Concord Secretary
- New Jersey Medical Society of Atlantic City May 17 19 Dr Alfred Stahl 55 Lincoln Park Newark Secretary
- New Mexico Medical Society Santa Fe June 1 9 Dr L I Coker Jr 219 West Central Ave Albuquerque Secretary
- New York Medical Society of the State of New York May 9 11 Dr Peter Irving 2 East 103d St New York Secretary
- North Carolina Medical Society of the State of Lenoir May 24 Dr T W W Linn Roanoke Rapid Secretary
- North Dakota State Medical Association Bismarck May 16 18 Dr Albert W Skelton 2014 North Broadway Fargo Secretary
- Ohio State Medical Association Columbus May 11 12 Mr C S Nelson 79 East State St Columbus Executive Secretary
- Oklahoma State Medical Association Muskogee May 9 11 Dr L S Willour Third and Seminole McAlester Secretary

Philippine Islands Medical Association Zamboanga City Apr 27 29 Dr  
A S Fernando 817 Taft Ave Manila Secretary  
Rhode Island Medical Society Providence June 12 Dr Guy W Wells  
124 Waterman St Providence Secretary  
Society for the Study of Asthma and Allied Conditions Atlantic City  
N J Apr 30 Dr W C Spain 116 East 53d St New York  
Secretary  
South Carolina Medical Association Myrtle Beach May 17 19 Dr E A  
Hines Seneca Secretary  
South Dakota State Medical Association Huron May 9 11 Dr Clarence  
E Sherwood 102½ Egan Ave S Madison Secretary  
Texas State Medical Association of Galveston May 9 12 Dr Holman  
Taylor 1404 West El Paso St Fort Worth Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1927 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (\*) are abstracted below.

### Archives of Internal Medicine, Chicago

61 161 370 (Feb) 1938

- \*Fatal Rheumatic Fever E F Bland and T D Jones Boston—p 161
- Atypical Facial Neuralgia Analysis of 200 Cases M A Glaser and H M Berman Los Angeles—p 172
- Effect of Experimental Cardiac Infarction on Response to Digitalis Janet Travell H Gold and W Modell New York—p 184
- \*Subcutaneous Administration of Oxygen T Simpson Leeds England and M H Barker Chicago—p 198
- Role of Anoxia in Production of Epileptiform Seizures with Studies of Acid Base Equilibrium T Simpson Leeds England and M H Barker Chicago—p 208
- Congenital Defects of Pericardium H Southworth and C S Stevenson Baltimore—p 223
- Four Lead Electrocardiogram in Cases of Recent Coronary Occlusion A Bohning and L N Katz Chicago—p 241
- Fever Induced by Intravenous Injection of Typhoid Paratyphoid Vaccine S W Ranson Jr New York—p 285
- Diseases of Metabolism and Nutrition Review of Certain Recent Contributions R M Wilder Rochester Minn and D L Wilbur San Francisco—p 297

**Fatal Rheumatic Fever**—Bland and Jones state that since 1921 about 1,500 children and adolescents less than 21 years of age have received hospital care at the House of the Good Samaritan for rheumatic fever and chorea. Data relevant to the 306 patients who have died are presented. Postmortem examination was made in seventy-four instances. The following conclusions are cited: 1 Rheumatic fever has been the principal cause of death and was directly responsible for the fatal issue in 250 instances (82 per cent). 2 The early years after the onset of the disease have proved to be a critical period. In approximately half (47 per cent) of the fatal cases death occurred during the first three years and in two thirds (62 per cent) during the initial five years. 3 Thereafter the extent of residual cardiac enlargement (dilatation) and, to a lesser degree, the rapidity with which it developed have served as the most reliable criteria of the severity of the preceding infection as well as an index of the future susceptibility of the individual patient to subsequent fatal rheumatic fever. 4 The age of the patient at the time of onset of rheumatic fever (or chorea) during the first fifteen years of life has been of no significance so far as subsequent longevity is concerned. 5 The manifestations of fatal rheumatic fever have been stressed and contrasted with the generally accepted clinical picture of the disease.

**Subcutaneous Administration of Oxygen**—Simpson and Barker observed the results of prolonged anoxia in thirteen epileptic patients who lived in rooms and were able to walk about and converse with their neighbors. The air breathed was under control as to humidity, temperature and oxygen content. The oxygen content of the inspired air was reduced gradually over the course of thirty-six hours in twelve cases. During the first thirty hours the average oxygen content of the air was 13.5 per cent and in the subsequent six hours it was lowered to a level that was thought safe for the particular patient from 7 to 9 per cent. The preliminary gradual induc-

tion of anoxia was used to prevent the undesirable effects of "mountain sickness." In no instance was a typical epileptiform seizure observed. To satisfy themselves that the presence of excess bromide in the blood of these patients (they were all under bromide therapy up to a few days before the tests were carried out) was not a factor in the suppression of seizures, the authors estimated the bromide content of the blood of every patient when he entered the chamber. In only two cases was the bromide level sufficiently high to have prevented spontaneous convulsions. In the remainder it was so low that it could not be detected by the Wuth method. The reaction of these patients to anoxia, as judged by the symptomatology and acid-base balance, was the same as one would expect and in no way differed from that of normal persons or of control dogs. The authors feel that the effect of anoxia by itself on epileptic subjects under ideal conditions is not a factor in the production of seizures.

### Delaware State Medical Journal, Wilmington

10 19 32 (Feb) 1938

- \*Some of the More Uncommon Visceral Manifestations of Syphilis G M Piersol Philadelphia—p 19
- The Syphilitic with Negative Wassermann F J Eichenlaub Washington D C—p 24

**Visceral Manifestations of Syphilis**—Although syphilis of the lungs, stomach and kidneys is relatively infrequent, it is of definite clinical importance nevertheless and its diagnosis may be readily overlooked unless the possibility of its occurrence is kept in mind. The three types of changes seen in acquired pulmonary syphilis, as stated by Piersol, are gummas, areas of consolidation and catarrhal inflammation and chronic fibrosis. The diagnosis of pulmonary syphilis is difficult and is usually arrived at by exclusion. Cases of this kind are nearly always looked on as instances of tuberculosis, especially if the lesion happens to be apical. In arriving at the diagnosis of pulmonary syphilis, the following criteria are of some value. The patient presents other evidences of syphilis, the lesion is limited to the root or base of the lung, repeated and careful sputum examinations carried out over a considerable period must be consistently negative for tubercle bacilli, the Wassermann reaction must be definitely positive. Although gastric symptoms are exceedingly common in syphilis, actual syphilis of the stomach is uncommon. Before the diagnosis of gastric syphilis is made it should be borne in mind that gastric lesions of nonspecific origin frequently exist in persons who give a positive Wassermann reaction. The most positive proof of the existence of syphilis of the stomach is histologic and bacteriologic. The diagnosis of gastric syphilis rests on a combination of clinical features, in conjunction with characteristic roentgenologic observations, a positive Wassermann reaction, a positive therapeutic test and on microscopic and bacteriologic examinations. The types of gastric syphilitic lesions are diffuse syphilitic gastritis, syphilitic ulcers and gastric gumma. Syphilis of the kidney may manifest itself in congenital syphilis as well as in the course of early or late acquired syphilis. *Spirochaeta pallida* is capable of inducing characteristic renal lesions, and a true syphilitic nephritis does exist. The invasion of the kidney by the specific organism of syphilis cannot be denied and it is not unreasonable to believe that the kidney may suffer definite damage. Acquired renal syphilis, acute syphilitic nephritis and chronic renal syphilis have been observed.

### Indiana State Medical Assn Journal, Indianapolis

31 49 110 (Feb) 1938

- Survey of Syphilis in Indianapolis F M Gristineau Indianapolis—p 49
- \*Blood Pictures of Patients with Intestinal Disease J A Bargon Rochester Minn—p 52
- Orbital Tumors D A Bartley Indianapolis—p 57
- Cecum Lignum H D Caylor Bluffton—p 62
- Foreign Body Impacted in Rectum Case Report W B Challman Mount Vernon—p 65
- Chronic Ulcerative Colitis E L Cartwright Fort Wayne—p 66
- The Physician's Collateral Reading E F Kiser Indianapolis—p 70
- Proper Pre-cribling E C Denny Milton—p 75

**Blood Pictures of Patients with Intestinal Disease**—Bargon discusses cases that illustrate types of pathologic processes that occur in the large intestine, in some, rather definite changes were found in the blood and in others, in which the

patients were seemingly as ill or more ill, there were no demonstrable changes in the blood. These two groups of cases are compared according to the type of management and progress of the patient. In two cases of severe septic type of thrombo-ulcerative colitis there occurred an identical blood picture, although in one case the history was of two years' duration and in the other only six weeks. The two patients were similarly ill, as far as degree of sepsis was concerned. Both patients recovered. One patient has been in good health for more than five years, the other, for a year. The blood picture was that of a hemoglobin deficiency type of anemia associated with reduction in the total number of erythrocytes and a relatively normal number of leukocytes, but the striking thing about the differential count was the marked shift to the left of polymorphonuclear leukocytes. The great predominance of non-filamented polymorphonuclear cells was also noteworthy. Some instances have occurred in which all the leukocytes, and frequently nearly all, have been nonfilamented polymorphonuclear leukocytes. In a case of hemorrhagic thrombo-ulcerative colitis the tendency toward hemorrhage was striking. Literally, bed-pansful of blood were passed and a very low content of vitamin C was found in the plasma. The marked reduction in excretion of vitamin C was noteworthy. The average normal content of vitamin C in the plasma has been recorded as 1 mg and excretion in the urine as 20 in a twenty-four hour specimen. Case 4 (chronic thrombo-ulcerative colitis with colonic scarring) is illustrative of the first type of chronic ulcerative colitis, in which the disease has burned itself out and, while much damage of the intestine has occurred previously, the present difficulty is largely a mechanical one. The blood picture was essentially normal in spite of a constant, severe diarrhea, to the extent of fifteen to twenty evacuations daily for two years. In a case of regional ileocolitis the blood picture was essentially normal in spite of severe obstructive disease at the ileocecal junction. The disease was inflammatory in nature and was associated with much scar tissue. In a case of diffuse polyposis, in spite of continuous diarrhea and severe bleeding from a polypoid mucous membrane for a year, no changes in the blood picture could be detected. Case 7 represents the timeworn story of anemia associated with carcinoma of the right side of the colon and case 8 illustrates that this type of anemia has been mistaken frequently for pernicious anemia. A case of actinomycosis of the sigmoid illustrates another type of blood picture commonly found in various types of severe, long standing perforating lesions of the colon. There was a persistent leukocytosis without the marked toxic features as expressed in other cases by the ratio of filamented to nonfilamented forms of the polymorphonuclear neutrophilic leukocytes. The high sedimentation rate of erythrocytes was also noteworthy. The severity of the disease was well illustrated by its prolonged course and by the appearance of the roentgenograms. The cases illustrate that in at least two major lesions of the intestine there is associated rather a characteristic blood picture. While the extent of changes in the blood varies in patients who have thrombo-ulcerative colitis, in the main the picture is quite characteristic. So, too, when there is a change in the blood picture in persons who have cancer of the right side of the colon, it is rather characteristic.

### Kansas Medical Society Journal, Topeka

39 4388 (Feb.) 1938

- \*Progressive Postoperative Gangrene of Abdominal Wall A. E. Hiebert Wichita—p. 45
- Psychiatry in General Practice L. G. Little Wichita—p. 47
- Minimal Case Finding in Pulmonary Tuberculosis C. F. Taylor Norton—p. 52
- Cooperation Between the State Medical and Pharmacy Boards W. Varnum Lawrence—p. 53
- Action of Eserine Administration During Homatropine Benzodrine Cycloplegia L. S. Powell Lawrence and M. E. Hyde Osawatome—p. 57

**Progressive Postoperative Gangrene of the Abdominal Wall**—Since most septic operative wounds of the abdominal wall are amenable to ordinary treatment and progressive postoperative gangrene of the abdominal wall is rather rare in the experience of the average surgeon and its early recognition and treatment are important, Hiebert lists the main features of this now apparently established clinical entity, progressive necrosis

about an operative abdominal wound, which does not respond to the ordinary methods of treatment, severe local pain and tenderness, slight rise in temperature or leukocytic reaction, general mental depression of the patient. The etiologic organisms are streptococci and staphylococci. Treatment short of complete cauterization excision of the entire lesion is likely to be inadequate.

### New England Journal of Medicine, Boston

218 205-246 (Feb. 3) 1938

- \*Useful Type of Light Waterproof Cast Preliminary Report A. Thorndike Jr. and W. E. Garrey, Boston—p. 205
- Surgical Treatment of Abdominal Fistulas S. F. Marshall and F. H. Lahey, Boston—p. 211
- Early Diagnosis of Schizophrenia by the General Practitioner D. E. Cameron, Worcester, Mass.—p. 221
- Social Security and the Physician C. A. Sparrow, Worcester, Mass.—p. 225

**A Light, Waterproof Cast**—Thorndike and Garrey state that the makers of cellulose products have developed a very hard, light, waterproof material for making box toes for shoes, adding boric acid to the cellulose compound rendered it but little more inflammable, when dry, than wood. The hard box toes were produced by molding a fabric impregnated with this compound while it was moistened with a solvent. Using this somewhat crude material, the authors constructed a satisfactory cast for a patient, who wore it daily in the water for five weeks. Numerous trials were carried out by impregnating various fabrics with the compound. The present most acceptable product is rolled, tinted, unbleached cotton sheeting, cut on the bias in widths of 2 and 3 inches and supplied in lengths of 10 yards. These bandages, correctly moistened with the quid drying solvent, are supplied in hermetically sealed cans. The casts made from this material are far lighter than plaster, extremely hard, waterproof and pervious to x-rays. The cast takes on the average from thirty to forty minutes to harden sufficiently for the patient to be dismissed, and a longer time before it cannot be indented. The authors have used this material to make numerous casts for the upper extremities, both molded and circular, for fractures of the carpal bones, Colles' fracture and fractures of both bones of the forearm and to make three shoulder spicas for fractured humeri. The method of application is similar to that adopted with plaster-of-paris bandage, except that only three thicknesses are required, in certain areas of long or bulky casts, however, additional reinforcing strips or circular layers may be required to counteract stresses or strains. This product has one especial advantage: should the cast crack at any point it can be mended with additional lacquer (solvent) and bandage. In applying the casts, drying will be facilitated by placing three layers of gauze bandage over the skin or by using stockinet. The danger of applying the cast too tightly and not allowing for shrinkage is emphasized, this danger has been minimized by providing an impregnated cloth cut on the bias. Lamination may be prevented by painting the cast with some of the cellulose acetate lacquer (supplied in separate cans) the day after its application.

### New Orleans Medical and Surgical Journal

90 445-510 (Feb.) 1938

- Treatment of Cancer and Precancerous Lesions of Vulva O. C. Rokby, Shreveport, La.—p. 445
- Treatment of Carcinoma of the Prostate E. B. Vickery, New Orleans—p. 452
- Congenital Malformations of Rectum and Anus as Cause of Constipation C. H. Webb, Shreveport, La.—p. 457
- Septicemia in Children: Report of Five Cases with Review of Literature on Therapy R. Talbot Monroe, La.—p. 463
- Factors Delaying Diagnosis of Pulmonary Tuberculosis I. A. Monte and O. Blitz, New Orleans—p. 468
- Bedside Diagnosis and Treatment of Cardiac Emergencies P. R. Heninger, New Orleans—p. 475
- \*Fatal Tularemia with Postmortem Examination W. R. Mathews, Shreveport, La.—p. 479
- Surgical Intervention in Acute Laryngeal Obstruction C. B. Flier, Monroe, La.—p. 489

**Fatal Tularemia**—Mathews reports three fatal cases of tularemia in which postmortem examinations were done. He summarizes the chief features of seven additional cases in which postmortem studies were made which were not included in the review of the twenty-one cases made by Bernstein in 1935. The gravity of clinical signs of pulmonary involvement in the course

of tularemia is emphasized by the fact that lesions of the lungs were present in twenty-four of the cases examined post mortem. The type of pulmonary lesion has varied, described as lobar pneumonia, abscess, cavitation and pleurisy with or without effusion. In earlier studies of necropsy material only the caseous lesions were considered to be due to tularemia. The outlying and more diffuse pneumonic patches were interpreted as secondary bronchopneumonia. More recently the demonstration of *Bacterium tularensis* in the pulmonary exudate has furnished strong support for the view that the exudative pneumonia, as well as the caseous, is due to the tularemic infection. The author was able to stain bacteria, morphologically consistent with *Bacterium tularensis*, in the pulmonary exudate of only his first case. Notwithstanding the indication that all types of pulmonary lesions in tularemic infection are due to this cause, it should be emphasized that a co-existent bronchopneumonia of other bacterial origin may be present, as was illustrated in one of Bernstein's cases. Attention has repeatedly been called to the resemblance of pulmonary tularemia to pulmonary tuberculosis. It is likely at times that pulmonary tularemia has been mistaken for tuberculosis. The microscopic changes closely resemble tuberculous caseous pneumonia except that they do not suggest distribution by aspiration. Tularemic involvement of the central nervous system is not an unimportant feature of the visceral pathologic changes. The postmortem data indicate that the most common sites of tularemic lesions are the skin, lymph nodes, lungs, spleen and liver. Isolated examples of tularemic lesions have been recorded in practically all the organs.

#### New York State Journal of Medicine, New York

38 245 322 (Feb 15) 1938

- Antipneumococcus Rabbit Serum as Therapeutic Agent in Lobar Pneumonia II Additional Observations in Pneumococcal Pneumonias of Nine Different Types T L Horsfall Jr K Goodner and C M MacLeod New York—p 245  
Incontinence of Urine in the Female Study of Urethral Sphincter Under Hydrostatic Pressure with Roentgenograms—Sphincter Mechanism Loss of Control Restoration W T Kennedy New York—p 256  
The Prospective Outside Plant Employee Practical Brief Physical Appraisal E S McSweeney New York—p 262  
Transfusions Preliminary Study I A Sussman New York—p 265  
Cancer of Rectum and Rectosigmoid J M Lynch New York—p 268  
Surgical Moving Pictures in Color The Problem of Lighting B M Bosworth New York—p 273  
Public Health Aspects of Mental Hygiene F W Parsons Albany—p 275

#### Philippine Islands Med Association Journal, Manila

18 1 58 (Jan) 1938

- Severe Abdominal Pain as an Unusual Manifestation of Rheumatic Infection A C Sison and G F Austria Manila—p 1  
Subdiaphragmatic Abscess Report of Case A B M Sison P Chikiamco and J Z S Cruz Manila—p 7  
Ovarian Conditions Giving Rise to Symptoms of Acute Abdomen E V de los Santos Manila—p 17  
Maternal Mortality in the Philippines During the Years 1925-1936 H Zwingli Manila—p 21

#### Public Health Reports, Washington, D C

53 281 328 (Feb 25) 1938

- \*Selenium as Potential Industrial Hazard II C Dudley—p 281  
Acute Response of Guinea Pigs to Inhalation of Methyl Isobutyl Ketone II Specht—p 292  
\*Quality of Drinking Water on Trains Note A P Miller and E C Garthe—p 300

**Selenium as Potential Industrial Hazard**—Dudley lists the industries which may have unrecognized hazards due to the processing of selenium bearing materials. They are those engaged in glass decolorization, production of ruby glass, red and yellow glazes and paint and ink pigments, production and coloring of plastics alloying of machinable stainless steels and free machining of copper base alloys production of rubber accelerators and antioxidants fireproofing of electric cable, and making photo electric apparatus and chemicals.

**Quality of Drinking Water on Trains**—From Sept. 14, 1936 to Feb 15, 1937 Miller and Garthe had 1,090 samples of drinking water from coolers and other containers on trains operating in interstate traffic collected by trained men under the supervision of Interstate Sanitary District I at two large terminals in New York City and three smaller ones in Hoboken

and Jersey City, N J. Samples were taken from all types of cars and trains without any attempt to be selective. Samples showing three or more 10 cc. tubes positive for the coli-aerogenes group were considered as unsatisfactory. Along with the determination of organisms of this group the total bacteria per milliliter growing on agar at 37 C was obtained. At no time did more than two hours elapse between the collection and testing of a sample. The percentages of samples showing three or more 10 cc tubes positive for coli-aerogenes for railroads 1 and 3 are considerably higher than for all others except 4, and the percentages of all three of these roads are in excess of the average for all samples tested, two of them considerably so. It is known that the sources of water supplying these lines are satisfactory, and that, if the water is safely handled, it should reach the consumers in good condition. Therefore, these results indicate that at least two of the railroads are inefficiently cleaning the containers on their cars or are handling the water after it leaves the supplying municipality's system in such a careless and insanitary fashion as to permit contamination.

#### Rhode Island Medical Journal, Providence

21 21 40 (Feb) 1938

- Toward the Prevention of Mental Disease A H Ruggles Providence—p 21  
The New State Hospital for Mental Diseases S F H Howes Howard—p 23  
Practical Management of Convulsive Disorders in Childhood C Bradley, East Providence—p 27  
Neglect of Elementary Body Functions Source of Personality Maladjustment H W Williams C Rupp and Kathryn Schultz Howard—p 29  
Insulin Shock Treatment in Schizophrenia H E Kiene, Providence—p 32  
The Providence Child Guidance Clinic Evelyn Alpern Providence—p 35

#### Wisconsin Medical Journal, Madison

37 85 176 (Feb) 1938

- Clinical Use of Protamine Zinc Insulin C C Edmondson Waukesha—p 101  
The Family Physician's Role in Preventive Medicine F G Johnson Iron River—p 107  
Acute Leukemia in Childhood Analysis of Sixteen Cases L M Simonson Sheboygan—p 110  
The Dystrophies of Childhood M G Peterman Milwaukee—p 112  
Protractor for Use in Nailing Fractured Neck of Femur J C Dean Madison—p 115  
Clinical Use of Blood Tests for Syphilis W F Lorenz Madison—p 117  
\*Nonvenereal Vaginitis E L Cornell Chicago—p 123

**Nonvenereal Vaginitis**—Cornell suggests the following treatment for nonvenereal vaginitis (*Trichomonas vaginalis* vaginitis). He prescribes 100 tablets of a preparation containing acetarsone (Devegan) and instructs the patient to insert one tablet in the vagina nightly after retiring. The patient is warned against having sexual intercourse throughout the course of treatment unless a condom is used. She is not to take douches. She should keep the labia clean by frequent washing, since the tablet disintegrates and is discharged from the vagina. If allowed to dry on the hair, it is difficult to remove. The patient is to return to the office on the first, third and fifth day of her menstrual period. At this time the menstrual secretions are cleaned out and three or four tablets are inserted into the upper part of the vaginal vault. When the period is finished, the patient may resume home treatment. After the fourth menstrual period the home treatment is discontinued but the patient is to return to the office one week after she stops flowing. The secretions at this time are cleaned out and, if *Trichomonas vaginalis* is not found the patient is instructed to return in ten days for a retest. If the test is negative again, the patient returns again after her next menstrual period for another test. The patient is considered cured if no evidence of *Trichomonas vaginalis* is found on this visit. If a patient who has finished the course of treatment and has been pronounced cured suffers a recurrence of vaginitis following sexual intercourse without the use of the condom the husband should be considered a trichomonas carrier even though the organism is not found in his prostatic secretions. He should be given treatment. The woman should be treated in the same manner as before for at least two or three months and retested thereafter.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Radiology, London

11 65 128 (Feb.) 1938

- Etiology of Bronchiectasis with Especial Reference to Pulmonary Atelectasis F P L Lander and M Davidson—p 65  
 X-Ray Evidence of Healing in Peptic Ulceration J R Wylie—p 90  
 Wavelength as Factor in Radiotherapy J H D Webster—p 108  
 Physical Factors of New Four Gram Radium Unit Now in Use at the Westminster Hospital Radium Annex H T Flint and C W Wilson—p 112  
 Rectangular Nozzle for Use in Radium Beam Therapy. Comparison of Ionization Currents Produced by Gamma Rays in Elektron Metal and Celluloid Ionization Chambers W H Rann—p 122

## British Medical Journal, London

1 215 264 (Jan 29) 1938

- Pathology of Adolescent Scoliosis R G Abercrombie—p 215  
 Outbreak of Paratyphoid and Dysentery in a Training Ship E R Pearce—p 217  
 Recurrent Hematemesis in Banti's Disease R Kemp—p 222  
 \*Association of Trauma with Progressive Muscular Atrophy G E F Sutton—p 225  
 Etiology of Acute Appendicitis A M Spencer—p 227  
 Massive Spontaneous Intraperitoneal Hemorrhage M Silverstone—p 230

**Trauma and Progressive Muscular Atrophy**—Little is known about the etiology of progressive muscular atrophy, but its association with trauma in a small percentage of cases has been described by eminent neurologists during the past decade. These authors divide such atrophies into different groups: muscular atrophy localized to the region of the muscles in the neighborhood of the injured joint, amyotrophy ensuing rapidly on the injury and developing on a paralytic background and slowly developing wasting preceded by any notable paralytic phenomenon and not associated with sensory troubles or reflex abnormalities. Sutton states that from 1925 to 1934 thirty-one cases of progressive muscular atrophy were admitted to the Bristol Royal Infirmary, and in only three of these do the case notes include a history of injury. It is probable that this number would have been higher but for the fact that many physicians do not inquire about a previous history of injury in such cases because the importance of this is not recognized. There is no evidence in favor of the idea that trauma merely "pulls the trigger" in cases in which there is a congenital predisposition, nor is there any practical support for the suggestion by Thiemann that an ascending neuritis occurs which ultimately involves the anterior horn cells and so produces the muscular atrophy. Localized reflex wasting after injuries of bones and joints is an entirely different condition. The problem here is one of widespread progressive muscular atrophy developing in some cases years after a severe injury. It seems to the author that one is bound to assume that a molecular disturbance of the brain or cord is occasioned by the injury. A mysterious feature of the disease is the lack of correspondence between the pathologic process and the symptomatology. It is possible, therefore, that degeneration of the Betz cells in the cortex and of the anterior horn cells in the cord may occur some years after the injury before clinical signs become manifest. There is evidence that trauma is a definite etiologic factor in some cases of progressive muscular atrophy.

## East African Medical Journal, Nairobi

1-4 311 350 (Jan.) 1938

- Medical Progress 1936-1937 R Hutchins—p 311  
 \*Infantile Edema Treatment by Adrenalin D Bell—p 327  
 Study of Sex Ratio in Ulanga Tanganyika Territory A T Culwick G M Culwick and R W Jackson—p 331  
 Achondroplasia H L Gordon—p 346

**Infantile Edema**—From April to October 1937 thirteen children with infantile edema were admitted to the Native Hospital, Kiambu. All were between the age of 1 and 4 years; eight were boys and five girls and all were African children from the Kiambu native reserve. The chief symptoms according to Bell were generalized edema in all cases with one exception; depigmentation of the hair in all cases; photophobia in six cases and rashes in all. In several boys the penis and scrotum were so swollen as to interfere with micturition. The children

all whined and moaned and resented being handled, being compelled to lie still, covered up with a sheet or blanket. No definite history of the onset of the disease could be obtained. In nine of the cases marked enlargement of the abdomen was noted. Coryza was observed in six cases, septic skin rashes in seven, ulceration of the penis and vulva in five cases. The blood in all cases showed anemia. Of the thirteen patients, one died six hours after admission, three went home slightly improved and nine were "cured." All the patients were treated with one-half drachm (2 Gm.) of an autolyzed yeast preparation three times a day, tomatoes, orange juice and cod liver oil with milk, beans and gruel. Three patients received this treatment only and the remaining ten were treated (in addition) by daily injections of 2 or 3 minims (0.15 cc.) of liquid epinephrine hydrochloride injected subcutaneously. Of the ten patients so treated one died after admission, but the remaining nine showed marked improvement in a short time, most of them after five injections were running about the ward and playing in the hospital grounds like normal children. In ten days most of the edema regressed, the skin all but returned to normal if slightly lighter in color and was a little more patchy than normal. The hair too in most cases became stronger, curly and dark. The hemoglobin average was now 70 per cent and the stools were improved. The improvement in the three cases treated without epinephrine was slight and in no way resembled the results obtained with it.

## Edinburgh Medical Journal

45 73 160 (Feb.) 1938

- Disorders of Interstitial Circulation W T Ritchie—p 73  
 Queer Patients. Some Notes on Artefacts R C Low—p 88  
 Chronic Nutritional Hypochromic Anemia L S P Davidson and H W Fullerton—p 102  
 Neuropsychologic Basis of Conduct Disorder R G Gordon—p 137

## Indian Medical Gazette, Calcutta

73 1 64 (Jan.) 1938

- Sternum Puncture I Findings in Normal Indians L E Napier and P C Sen Gupta—p 1  
 Adult Filarial Worm of Unknown Species Removed from Skin of Human Subject H R Rishworth—p 7  
 New Filarial Worm from Human Being P A Maplestone—p 8  
 Some Unusual Joint Lesions P N Ray—p 10  
 Experiments on Spirillum of Rat Bite Fever B M Da Gupta—p 14  
 Sphincterulina Fumicola (Eye Fly) M M Syddiq—p 17  
 \*Myeloid Leukemia Treated by Deep X-Ray Therapy S M K Mallick S Ali and B Singh—p 19  
 Some Recent Advances in Surgery J B Hance—p 21  
 Management of Head Injury Cases in Rural Practice P C Dutta—p 26

**Myeloid Leukemia Treated by High Voltage Roentgen Therapy**—Mallick and his co-workers cite a case of chronic myeloid leukemia which has been greatly benefited by high voltage roentgen therapy. There are two points at issue in this case: whether tuberculosis bears any relationship to this disease, for it has been noticed more than once that in some of these cases in which an earlier tuberculous infection has been overcome by rest and treatment myeloid leukemia developed later on, and whether the beneficial effect in this case was brought about only by exposure mainly of the bones. The X-ray exposure directly affects the hemopoietic tissue and thereby checks its malignant activity. This explains the benefit only in the present case but fails to explain the achievements of other clinicians whose patients have benefited from either exposure of the spleen alone or by exposure of the whole body, alternately ventral and dorsal sides without especially taking up the bones or the splenic region. Milani believes that though the reduction in the number of white cells is the most apparent phenomenon it is not the fundamental one in the mechanism of improvement. Thus destruction occurs in crisis analogous to that occurring in the spontaneous leukocytic crisis in all leukemias, the difference being that in those which occur after treatment the X-ray provokes a leukocytic increase which in turn provokes the crisis of destruction. He gives figures by taking daily white counts and proves how after a marked rise in leukocytes a sudden crisis which greatly reduces the count occurs. To Isaacs it appears that the good effect of high voltage roentgen therapy is due to stimulation of the formation of leukocytes and their maturation which subsequently ends in complete destruction of the mature cells.



**Annales de Medecine, Paris**

43 85 164 (Feb.) 1938

Glycosuria and Renal Threshold for Sugar M Labbe and S Liveratos —p 85

Tuberculous Ultravirus Existence not Demonstrated G Petragiani —p 101

\*Researches on Infantile Erythroblastic Anemia in Peoples of Eastern Mediterranean J Caminopetros —p 104

Role of Liver in Modifications of Proteins in Patients with Suppurations I Blutstein —p 126

Treatment of Diabetes Mellitus by Means of Diets Rich in Carbohydrates A Baisset and C Darnaud —p 138

**Erythroblastic Anemia**—According to Caminopetros, the facts collected so far indicate that erythroblastic anemia occurs especially in the countries of the eastern Mediterranean. It is a familial disorder which attacks children and usually ends in death. The first cases were observed by Cooley among the American-born children of Greek, Italian and Syrian immigrants. This author called attention to a special kind of bone lesion which can be detected in the roentgenologic examination of the skeleton. Since Cooley's report, other cases have been observed in America, always in children of Greek, Italian and Syrian immigrants. Only recently several cases have been described in Mediterranean countries, particularly Italy. In Greece, as in other countries, the disorder is confused with leukemic anemia or the other less acute anemias. The author investigated the incidence of this disorder in Greece. The total number of cases studied by him was thirty-six. He says that, in addition to the characteristics already known (erythroblastosis, Mongolian facies and osseous changes), there is augmentation in the resistance of the erythrocytes. To him this symptom seems so essential for erythroblastic anemia that it alone justifies the diagnosis, just as the diminution of the resistance identifies familial hemolytic disease. He directs attention to roentgenologic changes of the cranium. The fact that these changes and a complete absence of Mongolian facies characterize a number of cases induced him to separate from Cooley's anemia a new form, under the name of anemia of geophagists. Then he directs attention to a form of erythroblastic anemia, characterized by elongated forms of erythrocytes, recalling the sickle-shaped erythrocytes found in anemic Negroes. Finally the author studied a whole series of secondary anemias which, as is proved by their comparison with erythroblastic anemia, is already known under the term of von Jaksch-Luzet's anemia, which is entirely different from primitive erythroblastic anemia. The osseous changes in erythroblastic anemia are absolutely specific. The osseous malformations of the face and cranium result from the disease itself, and thus have to be differentiated from the other characteristics of the Mongolian race. The author points out further that hidden pathologic deficiencies have been detected in the apparently healthy parents and siblings of patients, such as the augmentation in the resistance of the erythrocytes and changes of the bones, two signs of erythroblastic anemia. This fact proves the possibility of a hereditary transmission for this alteration of hemopoiesis. The examination of the resistance of the erythrocytes constitutes a sure method to detect the apparently healthy carriers of the disease among the members of the families of the patients and thus provides a basis for a social prophylaxis, that is, by forbidding procreation. The hereditary transmission was proved also by the identity of blood groups. Malarial therapy is the only therapeutic method by which can be obtained an arrest of the abnormal and excessive functional activity of the hemopoietic system.

**Bulletin Medical, Paris**

52 125 138 (Feb 19) 1938

\*Intradermal Injection of Histamine in Treatment of Symptomatic Pains of Chronic Obliterating Arteritis R J Weissenbach and L Perles —p 127

Intradermal Injections of Histamine Procedure of Exploration of Tegumentary Circulation in Surgery of Members P Goinard —p 128

**Injection of Histamine in Obliterating Arteritis**—Weissenbach and Perles tried the intradermal injection of histamine, which they had been employing to counteract the pains of the contractures of rheumatism, in the treatment of chronic obliterating arteritis. This seemed justified in view of the antispasmodic and vasomotor action of histamine. In two cases the

results were such that they feel justified in calling attention to this treatment. They employ a solution of histamine bitydrochloride with a content of 0.5 mg per cubic centimeter. The adaptation of the doses to the individual patients is important, because many of these patients have hypertension and fragile arteries. The dose of 0.5 mg per injection should never be exceeded. The patients felt relieved at once. The pain in walking was improved after the first treatment and the spontaneous nocturnal pains were relieved the first night after the treatment. The first patient was given five injections in the course of two weeks. The second patient was given two injections during the first week and one injection each during the following three weeks. In both patients the functional improvements persisted long after the treatment. In the first patient, eighteen months has elapsed since the histamine treatment and in the second patient six months, and both are still free from pain.

**Arch Ital d Mal d App Diger, Bologna**

7 196 (Jan) 1938

Spurie Nostras of Malignant Evolution A Forconi —p 1

\*Behavior of Calcemia During Digestion in Relation to Different Grades of Gastric Acidity C Cella —p 25

Clinical Study of Six Cases of Choleperitoneum G Brendoln —p 49

**Behavior of Calcemia During Digestion**—Cella has reported the effects of induced calcemia on gastric acidity and gastric chemism in normal persons and in patients suffering from gastric and extragastric diseases. His article was reported in the *Archivio italiano delle malattie dell'apparato digerente* (6 381 [Aug] 1937, abstr THE JOURNAL Oct, 30, 1937, p 1494). The author now studies the effects of gastric acidity and gastric chemism on calcemia. He followed the behavior of calcemia during digestion in fifty-one patients suffering from gastroduodenal diseases and in another group having diseases other than gastroduodenal. He concludes that the curves of calcemia and of gastric acidity during digestion follow an independent course in patients who have increased gastric acidity (peptic, duodenal and juxta-pyloric ulcers, gastroduodenal stenosis and hyperacid gastritis) and in patients with normal gastric acidity (those with other than gastroduodenal diseases). The curves of calcemia and gastric acidity in patients with diminished gastric acidity and with anachlorhydria, when they are constant during digestion, run parallel to each other. If acidity increases in the gastric secretion of patients who are suffering from anachlorhydria, calcemia diminishes. In the fifty-one patients who had gastroduodenal diseases normal calcemia was found in forty-two cases, increased calcemia in seven and slightly diminished calcemia in two. In the majority of cases, calcemia does not change during digestion. In rare cases there are variations which do not exceed 17 mg of calcium for each hundred cubic centimeters of blood.

**Minerva Medica, Turin**

1 145 168 (Feb 10) 1938

Mechanism of Weltmann's Reaction of Coagulation of Blood Serum Relation Between Reaction and Proteins in Blood Serum in Pulmonary Tuberculosis U De Micheli and E Massobrio —p 155

\*New Factor in Pathogenesis of Chronic Bronchitis in Children and in Development of Pulmonary Tuberculosis Zula Franzoso Pirani —p 158

\*New Method of Homogenization of Search for Tubercle Bacilli in Sputum A D Aricenzo —p 159

**Diseases of Respiratory Tract**—Franzoso Pirani states that she has found eggs of parasites (ascarides, Trichocephalus and Ancylostoma) in the feces of all children who are suffering from a special type of chronic catarrhal bronchitis, as well as in those of adults who show sudden evolution of latent pulmonary tuberculosis. Bronchitis in these cases is diffused to one or both sides and the patients are anemic and dyspeptic. The roentgen examination of the thorax shows shadows at the hilus of the lung and sometimes adenopathies. Latent tuberculosis develops in one or both lungs. Controlling intestinal parasitism by administering antiparasitic treatment to the patients improves the respiratory diseases and the general condition of the patients. According to the author, intestinal parasitism is the cause of nontuberculous diseases of the respiratory tract and of the development of latent pulmonary tuberculosis. The fact is due

to the biologic cycle of intestinal parasites. The eggs in the intestine are acted on by gastric juices, a process by which the larvae are set free. The latter go through the intestinal wall, portal blood and blood vessels to the lung and pass through the parenchyma of the organ and the respiratory and digestive tracts back to the intestine, where they develop into adult forms. In rare cases the larvae perforate the lung parenchyma through the diaphragmatic pleura. The author emphasizes the importance of the knowledge of the part of intestinal parasitism in the pathogenesis of pulmonary and bronchopulmonary, tuberculous and nontuberculous diseases, especially for the diagnosis, prevention and treatment of the diseases.

**Homogenization of Tubercle Bacilli in Sputum**—D'Arienzo's method is as follows: A solution is prepared with 8 cc of distilled water, 15 cc of a 1 per cent solution of phenol and 0.5 cc of ammonium hydrate. Equal parts of the solution and of sputum are mixed, homogenized and placed in an incubator at 37°C. After ten or twelve hours the mixture is centrifugated. The sediment is placed on a glass slide previously covered with serum or with egg albumin and stained with Ziehl-Neelsen's dye. In thirty samples of sputum the author obtained the following results: All the samples gave negative results with the simple method of examination of sputum, twenty of the thirty samples gave positive results for the presence of tubercle bacilli with the method in which a strongly alkaline solution of sodium hypochlorite was used and twenty-three of the thirty samples gave positive results to the author's method. The technique is simple and the method useful.

### Prensa Medica Argentina, Buenos Aires

25 321 376 (Feb. 16) 1938

Treatment of Obstetric Fractures of Humerus and Femur. M. Ruiz Moreno—p. 321

Syphilis of Lung. Syphilis and Tuberculosis. Syphilis of Lung and of Larynx. A. A. Rissotto and I. Natin—p. 331

\*Action of Hypertonic Solution of Sodium Chloride in Acute Pleuropulmonary Disease. C. A. Videla, A. Saenz and P. Carnetale—p. 342

Prevention of Warts. F. Bazan and E. Sujo—p. 350

**Sodium Chloride in Pleuropulmonary Diseases**—Videla and his collaborators found that the exudates of serofibrinous pleurisy and the blood of patients suffering from the condition contain an increased amount of sodium chloride (440 mg. and 370 mg. of sodium chloride for each hundred cubic centimeters of exudates and total blood, respectively). The blood of normal persons contains 290 mg. of sodium chloride for each hundred cubic centimeters of blood. The variations of sodium chloride in the pleuritic exudate and in the blood of the patients are in relation to each other. The administration of intravenous injections of hypertonic solution of sodium chloride in daily progressive doses of from 10 to 20 cc. of the solution, up to a total number of from six to nine injections, diminishes the amount of sodium chloride in the pleuritic exudates and in the blood of the patients and stimulates reabsorption of pleurisy in acute pleuropulmonary diseases if pulmonary tuberculosis in evolution is not present. The authors believe that the increase of sodium chloride in the pleuritic exudates and in the blood of the patients shows dysfunction of the tissues in fixing sodium chloride. Satisfactory results of the treatment are reported in five cases.

### Klinische Wochenschrift, Berlin

17 73 112 (Jan. 15) 1938. Partial Index

Functional Test of Heart and Circulation. W. Borgard—p. 73

\*Increased Sensitivity to Digitalis in Case of Cardiac Impairment. E. Schulze—p. 75

Investigations on Treatment of Diabetes Mellitus. B. Schuler—p. 77

\*Behavior of Meimicke Immunity Reaction in Course of Pulmonary Tuberculosis. K. Spies—p. 84

Diuretic Action of Adrenal Cortex. A. Endo—p. 89

Comparative Determination by Means of Cuboni Reaction and of Allen

Douglas Test of Estrogenic Action of Urine of Pregnant Mares

I. Andersen and K. Pedersen Bjergaard—p. 91

Prolongation of Systole During Tetany and Its Modification by Various

Pharmaceuticals. N. L. Landau—p. 95

**Sensitivity to Digitalis in Cardiac Impairment**—Schulze points out that Frommerz and Bauer were able to demonstrate that the anatomic lesions in the cardiac muscle which are produced by toxic doses of digitalis are the cause

of the increased sensitivity to further medication with digitalis. The author himself had made the observation that hearts which had become impaired by the toxins of diphtheria had an increased sensitivity to the glucosides of digitalis. It seemed justified to assume that it was not the substance causing the lesion but rather the lesion itself which was responsible for the increased sensitivity to digitalis. To gain a better insight into this problem, the author studied the hearts of cats that had been made anemic and then subjected to work tests. These cats as well as their isolated hearts, show an increased sensitivity to digitalis. On the basis of these experiments and of earlier observations, the author assumes a relationship between the severity of the anatomic lesions in the myocardium and the degree of sensitivity to digitalis.

**Meimicke Reaction in Tuberculosis**—Spies reviews the literature on the Meimicke immunity reaction in tuberculosis and reports the results he obtained with this reaction in 252 cases. He found that when the Meimicke reaction was made only once it was positive in 102 cases, or slightly more than 40 per cent. He gained the impression that the positive outcome of the reaction is dependent on a demonstrable excess of antibodies. For this reason the reaction is negative nearly always in early infiltrates, miliary tuberculosis and generalized forms and in the predominating number of cases of severe acute exacerbations and hemorrhagic disseminations. Taking into consideration the outcome of the Meimicke reaction in the course of the tuberculous process, the conclusion is reached that the diagnostic value of the reaction is slight. In extending the serologic examinations over longer periods, it is found that the Meimicke reaction permits only a catamnestic evaluation of the disease process without allowing in most cases an estimation of the further development of the tuberculosis. Only in case of an acute severe exacerbation does the Meimicke reaction run exactly parallel to the course of the disease. The author discusses the present status of the antigen antibody problem during tuberculosis.

### Bibliotek for Læger, Copenhagen

130 135 (Jan.) 1938

Medical Faculty of University of Copenhagen Through Four Hundred Years. G. Norrie—p. 1

\*Cevitamic Acid in Serum Under Normal and Various Pathologic Conditions. H. E. Nielsen—p. 20

**Cevitamic Acid in Serum**—For determination of the cevitamic acid in the blood Nielsen used Lund and Lieck's method, based on the decoloration of methylene blue solution under powerful illumination when cevitamic acid is present. In 100 normal persons on ordinary Danish diet examined from April to September the lowest cevitamic acid value in the blood, an average of about 0.30 mg. per hundred cubic centimeters, was found in April and May, and the highest, an average of about 0.40 mg., in September. The Gothlin test is not specific for avitaminosis C and is most significant in cases in which it is positive and becomes negative under treatment with vitamin C. Determinations in April of the cevitamic acid values in forty pregnant and forty-one nonpregnant women in the same age group showed considerably lower values in the first group. Comparative determinations in the maternal and the fetal blood (umbilical cord blood) directly after birth revealed a deficit of cevitamic acid in the maternal blood and in the fetal blood an excess of up to eight times the amount in the mother's blood. In twenty-eight patients with gastric achylia the cevitamic acid values were lower than in normal persons during the same month. Deficient acidity in the stomach is a frequent anomaly in disorders due to vitamin deficiency, such as avitaminosis A, B<sub>1</sub> and B<sub>2</sub> in which the anomaly often disappears on addition of the respective vitamins to the diet. In twenty patients with gastric or duodenal ulcer of pylorogastritis the cevitamic acid value in the serum in April was 0.23 mg. per hundred cubic centimeters. A possible connection is seen between the frequent springtime appearance of symptoms in these patients and the low cevitamic acid values in the blood at that time. In a case of infantile scurvy with cevitamic acid value in the serum of about 0.05 mg. per hundred cubic centimeters in spite of the administration of lemon juice steady improvement resulted on subcutaneous administration of cevitamic acid.

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## UNDERGRADUATE INSTRUCTION IN PREVENTIVE MEDICINE

J G FITZGERALD, M D

Director School of Hygiene and Connaught Laboratories  
University of Toronto  
TORONTO

This survey has been undertaken to obtain information respecting the scope and content of undergraduate teaching of preventive medicine, public health and hygiene in any or all departments of medical schools in the United States and Canada and in twenty-four European countries. The survey has occupied a period of one year—Sept 15, 1936, to Sept 14, 1937.

The countries visited include

- |                  |  |
|------------------|--|
| 1 Austria        | 15 Irish Free State                    |
| 2 Belgium        | 16 Italy                               |
| 3 Bulgaria       | 17 Latvia                              |
| 4 Canada         | 18 Lithuania                           |
| 5 Czechoslovakia | 19 Norway                              |
| 6 Denmark        | 20 Poland                              |
| 7 Estonia        | 21 Rumania                             |
| 8 Finland        | 22 Sweden                              |
| 9 France         | 23 Switzerland                         |
| 10 Germany       | 24 United States of America            |
| 11 Great Britain | 25 Union of Soviet Socialist Republics |
| 12 Greece        | 26 Yugoslavia                          |
| 13 Holland       |  |
| 14 Hungary       |  |

Sixty-four universities in Europe and twenty-one in the United States and Canada were visited.

Because of the fact that a survey of medical schools in the United States and Canada was begun in 1934-1935 and continued through 1935-1936 by the Council on Medical Education and Hospitals of the American Medical Association with the cooperation of the Association of American Medical Colleges and the Federation of State Medical Boards of the United States, the number of institutions visited by us in the United States was definitely limited.

The Council on Medical Education and Hospitals made the information obtained in this survey available to Dr C E Smith and me. It consists of completed questionnaire forms (form R, Preventive Medicine and Public Health) submitted by sixty-nine medical schools. In addition we have been provided with notes made by Dr H G Weiskotten during his visits to fifty-four schools, as a representative of the Council on Medical Education and Hospitals.

There were, in the United States and Canada in 1936, eighty-seven medical schools. Fifty-four of the

sixty-nine schools from which completed questionnaires were obtained were visited and reported on by Dr Weiskotten. There were fifteen schools not visited by him which submitted information. Of these, twelve were visited by one or both of us. The total number of medical schools in the United States which either completed forms or were visited and reported on by Dr Weiskotten during 1934-1935 and 1935-1936 was seventy-one.

It is of some interest to observe that in the United States, to judge from these reports, there are in these seventy-one schools only eighteen that have full time university departments of preventive medicine, public health and hygiene. In Canada there are nine university medical faculties, and in five of these there are whole time departments. In twenty-five additional medical schools in the United States preventive medicine, public health and hygiene are included in or combined with bacteriology. In one Canadian university this is also true.

In the United States the following medical schools may fairly claim to have university departments of preventive medicine: Harvard, Michigan, Women's Medical College of Pennsylvania (combined with the Student Health Service), Stanford, Yale, Iowa, Tulane, Minnesota, Columbia, Cornell, New York University, Cincinnati, University of Pennsylvania, Meharry, Vanderbilt, California, Tufts and the Medical College of Virginia. With respect to the two last named, there may possibly be some question as to whether they should be so described.

In Canada there are whole time university departments at Western Ontario, Toronto, Queen's, McGill and Dalhousie<sup>1</sup>. All these have been visited and reported on by my colleague Dr C E Smith.

Combined or incomplete departments of preventive medicine, public health, hygiene and bacteriology existed at the time these surveys were made in the medical schools in the following universities: Chicago, Baylor, Syracuse, Western Reserve University of Virginia, Texas, Boston, Colorado, Georgetown, George Washington, Howard, Georgia, Loyola, Northwestern, Illinois, Louisville, Missouri, St Louis, Washington, Duke, Oregon, Jefferson, Medical College of the State of South Carolina, New York Homeopathic and Creighton (?)—twenty-five in all. In Canada a similar arrangement exists in the University of Alberta.

It is true that in some of the medical schools included in the foregoing categories the personnel may have duties in health departments of states, provinces or cities as well as university appointments. In general such arrangements are advantageous rather than the reverse.

<sup>1</sup> In addition there is a department of social medicine at the University of Montreal.

Read before the Thirty-Fourth Annual Congress on Medical Education and Licensure, Chicago, Feb 14, 1938.  
Based on study undertaken in 1936-1937 by the author and Dr C E Smith of Stanford University School of Medicine for the Rockefeller Foundation.

## EVOLUTION OF THE TEACHING OF HYGIENE

It may be profitable at this point to turn back and review briefly the evolution and development of the teaching of hygiene.

University concern with the teaching of hygiene, public health and preventive medicine dates back about seventy years. There seems to be general agreement that the first chair of hygiene was created in Munich in 1865 and was filled by Pettenkofer, then a worker in the Institute of Physiology. The first institute of hygiene, it is claimed, was established in Budapest in 1874, and Fodor was the first professor. In 1875 Vienna created an institute of hygiene, and in Munich in 1879 a separate institute was established for Pettenkofer. All this occurred in the period before bacteriology had begun its onward march. Pettenkofer and Fodor were names to conjure with.

The complete domination of the original concepts of Pettenkofer and Fodor concerning the scope of hygiene (regarded as a distinct scientific discipline in the medical sciences), and especially the nature of its content, is a fact of profound importance. To this day, in many medical schools, the introduction to the subject is effected by a detailed consideration of the environment of man and the various factors concerned therein. How many generations of medical students have been lulled to rest while listening to lengthy disquisitions on air, soil and water? These facts must be clearly recognized if the present position is to be properly understood. Much that is now struggling to find expression in the teaching of preventive medicine would long ago have been included in the program of medical studies if it had not been for this background.

Crystallization and later fossilization of the "environmental notion" has indubitably retarded progress in the teaching of public health and preventive medicine. Dogma and authority laid a dead hand on hygiene!

The commencement was not inauspicious. The original material on which the teaching was based, namely, some elements of meteorology, physics and chemistry, was expanded to embrace the new field of bacteriology or microbiology and that portion of physiology concerned with the study of growth and nutrition. Robert Koch was the first professor of hygiene in Berlin (1885), Rubner was his successor (1891). This amazing conjunction of microbiology, physiology and biochemistry as the fundamental basis of hygiene must have aroused great hopes. Alas, microbiology, bacteriology, infection and immunity all went one way, physiology and biochemistry another, and each became independent disciplines in the medical schools. Research and teaching in both advanced in a marvelous fashion, the former constantly fertilizing the latter. The expanding and developing foundations of scientific medicine, ever increasing in strength and significance, were becoming more and more imbued with the spirit of inquiry. Physiology set the pace.

In the meantime, what of hygiene? Literally, it was what remained after the departure or desertion of microbiology and physiology! This was true of course only in the hygiene teaching departments of many medical faculties. Actually, outside, giant strides were being taken in the fields of public health and of social and preventive medicine. The excursions of the state into the domain of medicine, from the passage of the English Public Health Act of 1875 and the introduction of health insurance by Bismarck, were becoming more

and more frequent and significant. The health and social well being of man was a matter of increasing concern to governments.

The fundamental sciences furnished the means for these repeated advances of enlightened governmental and voluntary agencies directed against disease, poverty and ignorance.

Physics, chemistry and biology in their expansion and development furnished new principles and methods by which physiology, genetics and immunology could be employed in the prevention of disease, the prolongation of life and the mitigation of human suffering. Thus did research and investigation in many fields of preventive medicine contribute most significantly to the triumphant march of science during the past half century.

The development of epidemiology was the work of many hands. In the past hundred years, however, the contributions of two pioneers stand out—the studies of William Budd and of John Snow. They were made in the prebacteriologic era. The great contributions to microbiology of Pasteur, Robert Koch and Theobald Smith (to name but three in a great galaxy) have not lessened the significance of the work of the pioneer English epidemiologists. On the administrative side real progress has resulted from the accumulation of careful records and painstaking observations carried on for half a century. Chapin and others in the United States deserve special mention. They contributed to a better understanding of sources of infection. Much earlier, in the statistical field, William Farr and Francis Galton in Great Britain prepared the ground for later work in experimental epidemiology and the more prosaic department of public health bookkeeping.

The development of a new field of work, or its more intelligent cultivation, by Richard Cabot in Boston, between 1900 and 1905, was important. It was the creation or new use of an auxiliary to the clinic, namely, medical social service. Its purpose was to assist in gaining a clearer insight into the effects on health of environmental influences. The field of study was extended from the patient to his surroundings, work, play, income, intelligence, education and interests. What factors (which could not be elicited by the history or by clinical examination) contributed to the patient's ill health? In earlier times sisters of mercy, lady almoners or representatives of charity organizations concerned themselves with the care of the needy. Often ill health was a causative factor. Could poverty and ignorance or maladjustment influence physical disease?

Medical social service had definitely, as one of its functions, investigation of causative factors or untoward influences. Social insurance (health, invalidity and old age), chiefly in European countries, has had a phenomenal growth in recent years. The relation of this to preventive medicine is not unimportant.

The study of the early symptoms of disease in special institutions like the James Mackenzie Institute for Clinical Research at St. Andrews is obviously an important avenue of approach—a highway of preventive medicine susceptible of great extension. Mackenzie's vision conceived of something definitely realizable. Appointment of keen young investigators in clinical research at certain centers in England within the past two or three years may here be noted.

One other group of activities may next be briefly considered. With the organization of elementary school health services and university health services there arose a demand for criteria in the effort to

physical fitness. What was the range of normality? What were the boundaries of the normal when the health of school children, college students or clients seeking periodic health examinations was being explored? When presumed healthy individuals of any age were being examined for the earliest evidence of deviation from the normal, or being advised as to a way of life, in order to maintain the ideal of "*mens sana in corpore sano*," whose responsibility was it to educate doctors to discharge such duties? With what scientific facts should they be familiar? What methods of examination should be applied? Whose job was it in the whole group of medical sciences to concentrate a little attention on the study of normal, healthy human beings, in their work, in their play, at different ages, under various economic, social and environmental conditions?

If one is interested in the search for the normal range of many important physiologic functions so that an answer may be given to the question "Is this person in a condition of mental and physical health?" there is certainly even greater need for the formulation of suitable criteria for assessing states of nutrition.

Now research into all these questions has been and is being done at present. In physiology, biochemistry and anatomy there is phenomenal activity. The advances in knowledge of hormones is an illustration of this. When one turns to the clinical side of medicine equally noticeable progress is manifest. To the advance of preventive medicine perhaps no other discipline has contributed more than pediatrics. In the steady and long continued effort to promote infant and child health, as well as to gain a wider knowledge of healthful states, pediatrics in many university clinics has shown how preventive medicine may be practiced as well as preached. Obstetrics, too, has contributed. The importance of antepartum care is now everywhere recognized. In most obstetric clinics it is taught and practiced, and the maintenance of the health of the prospective mother is really a part of the teaching of midwifery in the best medical schools. General medicine has also in certain specialties, notably tuberculosis and venereal diseases, a fine record of achievement. It is a far cry from the simple clinic of Calmette in Lille, with its attached "infirmieres visiteuses" or that of Philip in Edinburgh, to the tuberculosis dispensary of today.

Surgery too (notably in the clinic of Wilkie in Edinburgh) has been exceedingly active on the preventive side, as has ophthalmology, in the development of methods for the prevention of blindness (such as the use of suitable prophylactics to eliminate ophthalmia neonatorum and the aid given to the movement for classes in sight saving).

Psychiatry has taken a leading part in the mental hygiene movement. No field of medicine is more difficult of cultivation, none more important to explore and develop if possible. In any event, psychiatric clinics and special sections in general medical clinics (in conjunction with psychology) are now committed to the task of learning more of the genesis and evolution of psychotic states and of what may be done to prevent their occurrence.

It is abundantly clear that bacteriology and immunology are of prime importance in every further advance on that volume of preventable illness made up of communicable diseases. There bacteriology and preventive medicine may and do effectively collaborate. So much remains to be discovered concerning the etiology of

such widespread diseases as influenza (to mention but one of many) that the efforts of bacteriologists is unlikely to lessen opportunities for workers in the field of preventive medicine for many a long day.

#### EFFECTIVENESS OF TEACHING

In the meantime, what of the teaching of hygiene? Was it fruitful, was it effective, did it intrigue its students whether in elementary schools, colleges or faculties of medicine? Let us be honest. It did not! With a few notable exceptions, university medical schools had in their teaching departments of hygiene, surely reached the low-water mark of effectiveness when in ten or fifteen didactic lectures some elementary principles of physics or chemistry were employed in demonstrating a few unimportant facts regarding our surroundings, our clothing, our food and drink. That constituted what was rather quaintly described as hygiene and sanitary science. Of course, in many medical schools, some good, some bad and some indifferent, little or no attention was paid to hygiene and sanitary science, or even to preventive medicine, for that matter.

Let there be no misunderstanding. Man's environment is of profound importance. Clear understanding of its dangers and its hazards and inquiry into their nature and how they may be circumvented are no mean fields of human endeavor. Actually it has largely been a triumph for engineering. That field of science employing the methods of biology, mathematics and mechanics has made a great and enduring contribution to human welfare. It has been something real and effective in sanitary science. North America has participated in this triumph to a notable extent. Sedgwick and his school in Boston were among the pioneers.

With the collaboration of biologists in the fields of entomology, parasitology and helminthology, medical scientists and engineers alike have also contributed to some magnificent advances in the conquest of disease. Witness the achievements in malaria and tropical medicine generally. But it is not unfair to say that the inspiration did not derive from the medical teaching of hygiene.

Perhaps the creation of the first important separate department of preventive medicine and hygiene in the Harvard Medical School in 1909 was not entirely unrelated to the activities in the neighboring center of higher learning, the Massachusetts Institute of Technology. There Sedgwick labored. In any event the Harvard development was momentous. Previously in Europe, in the British Isles and in North America there had been conjoint chairs of bacteriology and hygiene, and where such existed public health aspects of bacteriology were often cultivated assiduously. The University of Minnesota was a notable example of this.

A reasonably complete and comprehensive picture of the situation in various parts of the world between 1900 and 1910 can be obtained by reference to medical school calendars and announcements of the period.

It is probably true to say that the German institutes of hygiene (and similar institutes in countries in which university medical faculties were modeled on German lines) were most advanced. They were independent university institutes. They were staffed by persons who devoted themselves to teaching and investigation. There were a number of journals for the publication of the scientific output of the workers in the field.



In few other countries was the situation so promising at that period. Certainly in but few of them in 1900 were there institutes in the German sense.

The situation at the best was seen in those places where bacteriology and hygiene were combined and where the teaching was limited to a consideration of certain aspects of infection and immunity, to the study of communicable diseases and some reference to such environmental topics as bacteriologic and chemical methods employed in water purification and sewage treatment. If there was affiliation between such departments and health organizations, the situation was not without promise. It obtained in a number of institutions in North America. In Michigan in 1910, under the late Victor C. Vaughan, there was perhaps the best department on the German model in North America.

In the British Isles and in many British communities the subject was combined for purposes of university teaching with medical jurisprudence or legal medicine. There may not have been much logic in such an arrangement, but it often had the merit of affording a brilliant expositor with a first-rate opportunity of displaying his forensic talents or fascinating his auditors with the details of a local murder mystery. It was enjoyable but had not much to do with preventive medicine and hygiene.

Almost nowhere at that time was the instruction other than didactic. Examinations in hygiene, even where they were required, presented few terrors for the indifferent and none for the diligent student. Almost everywhere, outside German universities (and those like them, in adjacent European countries), the students held hygiene in low esteem.

Those who constitute the great bulk of medical practitioners today, who are 50 years of age or more, received no teaching whatever in hygiene worthy of serious consideration or, as medical students, did not hear of the subject at all. There is little wonder, then, that it is a "minor" subject in the opinion of mature physicians generally and that they are not greatly moved by the agitation or clamor for more instruction in preventive medicine.

This has naturally led to the conclusion on the part of not a few that preventive medicine, hygiene, public health, social medicine and the like need not be developed in independent departments or chairs but should be regarded simply as part of the subject matter of anatomy, biochemistry, physiology, bacteriology and the clinical branches. The arguments for and against this point of view are essentially those used by persons who do not believe in separate chairs or clinics or departments of subjects like pediatrics or psychiatry. They need not be elaborated. They are largely academic and lacking in reality. There are also those who, while admitting that it is desirable to teach preventive medicine to medical students, insist that there is no time for such instruction in an already overcrowded curriculum. The answer to that objection is that suitable rearrangement, rather than any addition to the program of medical studies, could and should be made. In a number of the best schools it has been done and is quite possible and practicable anywhere.

The proponents of the view that preventive and social medicine is most likely to be developed vigorously and satisfactorily, if recognized as a distinct discipline in the medical school, are those who believe that preventive medicine, in many of its aspects, is a responsibility of practically every department of the medical

school. They adhere, however, to the view that this business will be accomplished most thoroughly if some portions of the field (left largely uncultivated by other departments) are the responsibility of some one department. This may be called hygiene, public health, preventive medicine or social medicine. Preventive and social medicine is perhaps the least objectionable. But designations are less important than the job and the way in which it is done.

#### SUBJECTS TO BE TAUGHT

The precise activities of departments of preventive and social medicine will naturally vary in different universities. But in broad outline they may be sketched. Certain aspects of applied physiology or physiologic hygiene may be developed and taught. An extension of human physiology may be carried on for the study of normal ranges, so that the bases of methods of health examinations and health teaching may be made more secure. Relationship with school health services or, better still, partnership with the university health service should be established. The opportunities for investigation therein would be many and valuable. Certainly undergraduate medical teaching should be organized and perhaps initiated in this ideal setting. Students would carry on their studies of "normals" in an atmosphere in which diagnosis and treatment of the sick are not a duty or a necessity.

Combined with the study of function should be that of structure. Careful anthropometric measurements should be taken and recorded. Inquiries should be instituted into human biology and eugenics. Naturally, colleagues in physiology might collaborate in planning the exact scope of such inquiries and possibly would agree to exercise some critical supervision. That anthropologists, too, are not entirely disinterested may be inferred from the whimsical and provocative article by Hooton, "An Anthropologist Looks at Medicine." Instruction in this section should be didactic and practical. Logically also the influences of important and measurable environmental influences could be correlated with this.

Unless students have already been introduced to the elements of statistical methods, it should forthwith be done. In a few brief exercises this essential equipment may be acquired. Digression here may be warranted in reference to this matter of statistical teaching. It need be neither prolonged nor profound, but it should be adequate and preferably included in pre-clinical instruction or incorporated in biology or physiology. The physician of tomorrow should be trained to think quantitatively. He need have no special mathematical aptitude to comprehend elementary statistical principles. There are now available clear and concise introductions to the subject. An admirable example has recently appeared.<sup>2</sup>

The positive approach to the teaching of preventive medicine through applied physiology or an extension thereof is most logical. Observations on growth and dietary studies (of healthy persons) are other suitable topics for class work.

The introduction, then, is based on the concept that health maintenance comes before disease prevention and that other aspects of the subject should be introduced to the student only when he has had opportunity to comprehend and apply the preventive idea.

<sup>2</sup> Hooton, E. A. *Science* 87: 271 (March 20) 1936.  
<sup>3</sup> Hill, A. B. *Principles of Medical Statistics* London: The Lancet Inc. 1937.

In a four year medical course the teaching in preventive medicine may be included in the third year program. After the introduction outlined, or coincident therewith, a course of didactic lectures, from thirty to thirty-five in number, may be given. They provide an opportunity for the elucidation of the principles of epidemiology, the hygienes, special public health problems of the country, health services in industry, public health engineering, public health laws, organization and administration. This teaching should be specifically designed for future medical practitioners and not for those who intend to specialize in public health. Ideally, the didactic instruction should be correlated with the practical exercises and field work. But the lecture course may precede other teaching by a few months without serious inconvenience arising.

Certain principles and procedures should be incorporated in any such practical teaching. The nature of specific prevention of communicable disease can be reviewed and various methods of determining susceptibility practiced. Also vaccination against smallpox, inoculation against diphtheria and the like should be carried out by each student and a careful record made of daily observations, from ten to fourteen days in vaccinia, and at other suitable intervals in the case of inoculation against diphtheria. The ordinary public health diagnostic laboratory procedures of assistance in the recognition, treatment and prevention of communicable diseases should be reviewed and, better still, carried out in a series of five or six half-day laboratory periods.

The clinical teaching of communicable diseases, if correlated or integrated with this, may very well benefit not only the student but also the instructors engaged in such a conjoint enterprise. It should, however, be systematic, carefully planned and regularly carried out. It is probably unwise to leave it to the chance occurrence of suitable clinical cases in the medical or pediatric services. In many communities with active health departments such cases may be few and far between.

Other practical exercises of interest and importance to future physicians may be easily organized. One or two may be centered around physical and chemical principles on which rest methods of water purification. Perhaps a concise chemical and bacteriologic examination might be made of samples of raw and of pasteurized milk. Then a laboratory period may be devoted to the observations of the methods of producing biologic products utilized in the prevention and treatment of disease and in the Schick, Dick and Mantoux tests. Such an exercise affords an opportunity of emphasizing biologic standards, national and international, and also of indicating which methods of specific serum or vaccine prophylaxis or therapy have an adequate scientific foundation.

A period should certainly be devoted to vital statistics in public health and to a review of those record forms with which doctors should be familiar, such as birth and death certificates. He should know that there is an international classification of causes of death and be in possession of a copy of the booklet in which they are listed and arranged.

From ten to fifteen half days will probably suffice for the exercises thus far proposed. There should then be arranged a series of visits, excursions and field trips to permit the student to learn something of the work of the public health and social agencies. Cooperation with or, better still, assistance (possibly by part time staff appointments) from health departments is essential. It

is the good of the health department, the students and the community that the health department serves. By and large, teaching hospitals possess opportunities (they may not of course be exploited) which nonteaching hospitals do not. Health departments, school health services, special public health clinics and dental services serve the "well population," as hospitals and dispensaries do persons who are ill. All are community resources. They are probably the better for it if their facilities are used for teaching and research. They are frequently so utilized for training nurses and social workers. Why not medical students? Always the principle is kept in mind that it is general medical practitioners who are being prepared and equipped.

Generally speaking, the public health organization will be that of the state or province or of a municipality. Not infrequently this practice field is a health district or unit or possibly a health center and the area which it serves.

These arrangements should enable medical students to observe essential activities such as the conduct of school health services and the special classes auxiliary thereto, public health clinics, public health nursing activities, the routine of infant and preschool child health centers, laboratory, statistical and epidemiologic services, the general sanitation machinery, and the supervision and control of foods, including milk and milk products. It is good if students are afforded opportunities of seeing all steps in the production of safe, clean, pasteurized milk from producer to distributor. Unclean, unsafe milk is a potent source of preventable disease. Medical students should be familiar with the measures that have been instituted to safeguard the community from such a hazard. Health service in industry should also be observed.

Students should have a knowledge of social conditions under which poverty and ill health breed and flourish. This they may acquire by home visits with public health nurses or with social workers.

These observational visits should be carefully planned and suitably supervised, and every student should record his observations. Such records should certainly be read and appraised by an instructor and may appropriately be discussed in seminars or group discussions.

Observational visits can be made very interesting and instructive, but only if the medical school is in a center where there are suitable public health and social organizations. Also, they are possible only if good team-work and cordial relations exist between those working in preventive medicine in the medical schools and those whose public health and social responsibilities are elsewhere. This part of the plan of the teaching may occupy from fifteen to twenty half days. Thus about one month is required, altogether, for practical preventive and social medicine in addition to the thirty or thirty-five hours for theoretical instruction.

Is it unreasonable? Does it give the medical student something he should have and is not given in other departments? What are the objections to it? Can a medical school really meet the present-day requirements of its student body unless there is instruction in preventive and social medicine? Should medical students be as well trained in preventive medicine as are public health nurses?

At this juncture, it may fairly be asked, What resources and facilities should a university medical school possess to enable it to provide entirely adequate

preparation in preventive and social medicine, public health and hygiene? These may be set out as in the accompanying table

Earlier it was emphasized that the ideal setting for the initiation of teaching preventive medicine is one in which health conservation rather than treatment of disease is the major preoccupation of the student and the instructor, hence the supreme importance of an adequate health service and access to it for purposes of teaching medical students. Equally essential is suitable staffing of the service. Unless it is also the department of preventive medicine of the medical school, it should most certainly have close and effective relationship (through organization of staff) with that department as well as with the departments of physiology and internal medicine.

#### *University Institutes, Departments or Clinics*

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|---|--|
| A | Medicine (tuberculosis venereal diseases social service)   |
| B | Surgery (social service industrial hygiene and industrial clinic) <ol style="list-style-type: none"> <li>1 Ophthalmology (sight saving)</li> <li>2 Orthopedics (follow up service for anterior poliomyelitis convalescents etc)</li> </ol>   |
| C | Obstetrics (antepartum service postpartum follow up instruction respecting contraception)  |
| D | Pediatrics (infant and child hygiene milk depot child guidance clinic nursery school)  |
| E | Psychiatry (mental hygiene including child guidance clinics psychiatric social service psychiatric service in the school juvenile court auxiliary classes vocational schools)  |
| F | Preventive and Social Medicine Public Health and Hygiene <ol style="list-style-type: none"> <li>1 Access to health departments for school health services special classes general services laboratory studies epidemiologic studies, sanitation food control public health nursing social agencies</li> <li>2 Facilities for bacteriology and immunology statistics epidemiology</li> <li>3 Access to Students Health Service</li> </ol> |
| G | Physiology or Physiologic Hygiene including Biochemistry (nutrition personal hygiene industrial hygiene introduction to statistical methods ventilation, illumination etc)   |
| H | Bacteriology (systematic teaching and research including the study of viruses immunochemistry and chemotherapy)  |
| I | Applied or Human Biology (perhaps included in preventive medicine or anatomy) (anthropometry eugenics studies in human heredity statistical methods With Medicine studies of constitution)   |
| J | Interdepartmental facilities for combined activities such as <ol style="list-style-type: none"> <li>1 Clinical conferences or clinical lectures medicosociological communicable disease</li> <li>2 Domiciliary visits medical social service or public health nursing or district visiting nurse service</li> <li>3 Periodic health examinations Student Health Service</li> </ol>   |
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It is of some interest to recall the observations of a distinguished student of medical education relating to instruction in preventive medicine.<sup>4</sup> In a discussion of the laboratory sciences there is a section devoted to pathology and bacteriology, in a concluding paragraph Mr Flexner wrote

With the rapid scientific advance in bacteriology which I have above barely outlined, the outlook and spirit of the medical school have already been perceptibly modified, prevention—both socially and individually viewed—is coming to figure more largely in the student's training and in the practitioner's activities. Nor will the challenge of the humanitarian bearing be without its effect even upon the imagination of the investigator. Faculties of public health have to be sure also been established but this does not mean that prevention becomes *their* business, while cure remains the concern of the physician. On the contrary, within the medical faculty itself it has become increasingly impracticable to study the diagnosis and cure of disease without consideration of its eradication and prevention.

That conclusion is even more abundantly justified today as far as it has reference to the teaching of the preventive aspects of pediatrics, obstetrics, psychiatry, surgery and certain fields of medicine.

It will of course be realized that regardless of facilities and material resources, unless and until preventive (including social) medicine and public health is recognized as an essential discipline in the medical school, progress will be unsatisfactory.

This recognition will probably be forthcoming in various forms and at different times in different countries and universities, depending on their needs, their interest and their national genius. It scarcely need be stated that provision for research and investigation is as essential in this as in any other department of the medical school and should be made available. Field as well as laboratory investigations will probably be a feature of university departments of preventive medicine and public health.

Comparisons of situations existing in universities in different countries at the present time are possible only if suitable criteria are available by which to measure or assess efforts that are being made to teach preventive medicine.

These criteria may be considered in terms of personnel scientific productivity, teaching ability and financial or budgetary resources. Brief reflection will render it obvious that in a study of the situation in many countries with widely different traditions in medical education it is almost impossible, or at any rate unprofitable, to pursue such comparisons at any length or in any detail.

It is especially true as regards the content of courses of instruction in hygiene and public health that it is likely to be influenced by the character and extent of public health and social welfare organization and activities in any particular country. That is not true to any considerable extent of other subjects in the medical curriculum.

Proceeding to the more specific question of hygiene teaching, Mr Flexner wrote

Hygiene varies enormously (I speak here of hygiene as a topic in the medical curriculum, not of instruction in hygiene designed for persons entering the health service. Hence the text takes no account of such courses as lead to the "diploma in public health" [D. P. H.] in Great Britain). In Germany, England and Sweden, didactic and illustrated lectures are given in Germany, and in Sweden at Stockholm and Uppsala institutes of hygiene exist in the medical faculty, in France, the subject is largely absorbed by bacteriology, in the United States, it figures in the main indirectly—in bacteriology and internal medicine and, more important still in a change of view, gradually perceptible which tends to permeate the entire medical school with the thought of preventive medicine. Chairs of hygiene have, however, been established at Yale Harvard Columbia Cornell and Vanderbilt and schools of public health on a par with their respective schools of medicine, are being developed at Pennsylvania, Harvard and Johns Hopkins.

It is a reasonable assumption that even informed opinion fifteen years ago did not conceive of preventive and social medicine and public health as elements in the medical curriculum in just the form in which they are understood today. Neither the tasks of this discipline nor its needs were wholly realized.

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**Effect of Discipline on Progress of Medicine**—It has been well said that a teacher whose disciples do not go beyond him has failed. It is true that to smother a student beneath the weight of authority is to hamper the progress of medicine—Langdon Brown Walter *The Dead Hand in Medical Science* *Lancet* 1 277 (Jan 29) 1938.

<sup>4</sup> Flexner Abraham *Medical Education A Comparative Study* New York, Macmillan Company 1925.

REPORT OF THE COUNCIL ON  
MEDICAL EDUCATION AND  
HOSPITALSRAY LYMAN WILBUR, M.D.  
STANFORD UNIVERSITY, CALIF

During the past year the Council on Medical Education and Hospitals has been engaged in a follow-up campaign in connection with the national survey recently made of all the medical schools of the country. We have endeavored to be helpful in the correction of weaknesses in certain schools but have reached the stage at which, if it is found impossible for an institution to maintain a strong and effective medical school, we shall soon give public announcement to the removal of all such schools from our approved lists. We have recognized the effect of the continued depression on the financial operation of institutions engaged in medical teaching. The power of the Council, however, largely depends on its study of facts and the publicity given to them for the protection of future medical students and eventually of the profession and of the public. The Council's commentary on the medical education of today will soon be made available.

## PREMEDICAL REQUIREMENTS

At the very outset of the Council's activities, and a little later in the Carnegie report, the greatest emphasis was laid on the necessity for a definite educational requirement for admission to medical schools, in order that those who were accepted as medical students might have a sufficient foundation to be able to pursue with advantage the various parts of the medical curriculum.

Our most recent survey has again demonstrated that the most important factor in determining what comes out of a medical school is what goes into it—that is, the educational and personal qualifications of those who are accepted as students. Once again, the utmost emphasis must be placed on standards for admission and the process of selection.

It is for this reason that the Council recommends that the minimum requirement be raised from two to three years of college. Already approximately 90 per cent of those admitted have reached this level, but a few schools with lax admission policies still accept candidates with barely sixty hours and barely passing grades.

For raising the requirement, three reasons may be urged: first to permit a more thorough grounding in science especially in chemistry which is becoming every day more important in medicine; second, to allow the prospective medical student more opportunity to become acquainted with non-science subjects which are intimately related to his professional activities, such as psychology, sociology and economics; and, third, to insure that students from junior colleges shall have spent at least one year in a university atmosphere before entering the professional school.

The ultimate selection of medical students rests, however, more on a qualitative than on a quantitative basis. The student who has completed four years in college with no grade higher than a C is undoubtedly a poorer risk than the student who has to his credit two years of strugle. The better schools have all recognized this fact in their admission policy, but there are still too many especially state institutions which

feel bound to accept every candidate who has the requisite number of "hours" regardless of performance.

It is for this reason that the Council recommends that each school formulate for itself and effectively administer an admissions policy based on an understanding and acceptance of the fundamental principle that not every student who can attain a passing grade is a good enough risk to be entitled to admission to the medical school. Granted a few exceptions, the man who has never made better than C in college will probably never reach an average of C in medical school. The medical profession gains very little by having members added to it who are not capable of doing good work in at least several departments of the medical school.

Dr Rypins, three years ago, presented to the Blue Print Committee a paper in which he indicated that there are probably not more than 4,500 really well qualified candidates available each year. At that time our schools were admitting annually about 6,500. If Dr Rypins is anywhere near right, we are still accepting too many applicants each year. Any improvement must come through better selection based, among other things, on higher standards of achievement.

## INTERNSHIPS

The period of apprenticeship commonly designated internship is now, more widely than ever before, recognized as a continuation of the preparation for the practice of medicine. Those hospitals which are controlled by universities or medical schools readily admit and reasonably discharge their educational obligations. Others somewhat slowly have come to accept responsibility for the instruction of house officers. At present there is a dangerous tendency, especially in New York, to demand that interns be paid substantial salaries in municipal or county hospitals. Should this custom be established, there would surely ensue a deterioration of the educational value of such internships. Public officials, having paid the intern for his services, could hardly be expected to feel themselves under any obligation to furnish him also free instruction.

In many ways the intern year is the best educational year that the young doctor ever enjoys. Because of certain difficulties there has been a tendency on the part of the medical schools to throw off onto the hospital the full educational responsibility of the intern year. This is a fundamental mistake. By requiring the intern year and making it a part of the medical curriculum there is hope that it can be better organized and better controlled as an educational enterprise. It is, of course, annoying to members of the medical faculty to have to secure internships for their students, to guide to some extent their choices, and to have a feeling of responsibility for training which may be distant from the medical school. But from the standpoint of the public and of the profession it is vital that the medical school faculties accept their very large responsibility in working with the hospitals to make the intern year—in fact, the intern years—effective and significant.

## SPECIAL BOARDS

The medical profession and the public have demanded some reliable means of identifying the qualified specialist. All too many "self-appointed" specialists have inflicted physical suffering and financial loss on the people. About five years ago it became evident that unless some other solution was shortly found some of the states would set up machinery, analogous to the medical examining boards, to pass

on the qualifications of specialists. The American Medical Association in 1933 undertook to sponsor such voluntary examining boards in the specialties as should conform to standards to be formulated by the Council, in the belief that this was a better answer to the problem than state action. At the time, the four or five existing boards were reluctant to accept supervision by the Council. In the intervening years there has been a growing understanding of the role of the Council on Medical Education and Hospitals and reasonably satisfactory relationships have now been established with the respective examining boards. While it will take some time to develop a uniform policy, with the help of the Council and these examining boards substantial progress is being made.

Through the power of publicity possessed by the American Medical Association, the Council can and should exercise a wholesome influence with these boards. I feel that eventually the boards will welcome the support of our organization. The greatest danger, both to the public and to the profession lies in the tendency of some of the boards to conceive of their functions in terms of a medieval guild, each rigidly to restrict the activities of its own members and to seek first to promote the welfare, financial and professional, of its own group. The short-sightedness of such a policy is, of course, apparent. Unless these boards are broadminded enough to place the public interest ahead of their own immediate apparent profit, they will serve no useful purpose and must soon be superseded by some other agency.

#### GRADUATE MEDICAL EDUCATION

Graduate medical education has been the concern of the Council since its inception. Recent surveys such as that made for the state of Iowa, indicate that a very considerable amount of educational opportunity is available to physicians in a number of our states. The Council has endeavored to stimulate graduate instruction. As in the undergraduate field, its function includes the formulation of standards, the application of such standards to individual institutions and their appraisal or classification. Steadily graduate medical instruction has become of great importance with the development of medicine. Recently there has been organized a Commission on Graduate Medical Education, sponsored by the Advisory Board of the Medical Specialties, to review the general background of graduate instruction and to develop conceptions of just what is desirable to do in America. The Council will of course, continue its regular functions in this field, carry on its comprehensive study of graduate medical instruction and give assistance to the commission in its special work.

#### CONCLUSION

In general the Council is proud of the splendid record which the leading American medical schools are making in every part of medical education, including research. Some twenty schools, though, are weaker than they should be. There are sufficient resources of men and money to build them up in most parts of the country, but there are a few institutions that should abandon the expensive field of the education of the doctor. The university or school assuming the responsibility of training the physician should realize that every effort is both justified and required to assure high quality of training for carefully selected men and women with good brains, good hearts, good will and good character.

## OPPORTUNITIES FOR THE TRAINING OF FUTURE INTERNISTS

J. H. MUSSER, MD

Professor of Medicine Tulane University of Louisiana School of Medicine  
NEW ORLEANS

John Morgan, founder of the University of Pennsylvania School of Medicine in 1765, had probably one of the wisest concepts of medical education that any man has ever had in this country. Certainly his ideas were many, many years in advance of his contemporaries and those educators who followed after him. In his dissertation on the institution of medical schools in America he pointed out the necessity of the medical neophyte having a thorough preliminary education both in literature and in the sciences. Unfortunately the mental perturbation that resulted from his dismissal from the Continental Army as the medical director turned aside his thoughts on medical education and the principles of the training of physicians to other things which he considered more important, certainly more important to him but not of great importance to the future of medical education. Morgan never engaged in teaching after he entered the army and, although his position in the young medical school was held open for him for several years, he never went back to it.

Morgan was primarily interested in the teaching of undergraduate medical students, but he was a far-seeing thinker likewise interested in specializing. He was the first practitioner of medicine in this country to limit his practice to one branch of medicine, and although he was much ridiculed for this innovation he made a success of it. As Abraham Flexner says, "he [Morgan] knew that an internist, a surgeon and an apothecary have different tasks and require different training." Morgan's ideas in training of the medical student put into effect in 1765 were promptly dropped as a prerequisite for admission to enter the undergraduate medical school, and it was not until Johns Hopkins University School of Medicine commenced to function, about 1890, more than 100 years later, that his principles were made effective. It was not until about this same time that medical men began to specialize on a broad scale, and it has only been in the last twenty-five years that specializing has become widely accepted.

With the increase in the number of men going into special fields of medicine it became necessary to develop a method whereby a man could be judged as to whether his training was adequate and whether his knowledge of a specialty was sufficient for him to be above the educational level of his fellow practitioners. In order to set up an agency or agencies whereby the qualifications of a man to practice his specialty could be judged the American Board of Ophthalmology many years ago (1916) instituted examinations to test the qualifications of the prospective specialist. Quite a few years later other boards were established, and now nearly every specialty has a board whereby men may be issued a certificate provided they have had ample amount of preliminary training, provided they have shown qualification by examination by their medical peers and provided their knowledge of the subject is sufficient to rate them as skilled in making special studies and special diagnoses or in performing complicated operations. These boards are only quasiofficial. They work with



the American Medical Association but they have on them also representatives of special medical societies. They have been formed as a sincere effort to give to the public information showing that a man is well qualified to practice a specialty. No longer is it possible or will it be possible for a physician to label himself a specialist in some branch of medicine and be generally recognized as such merely on his expressed opinion of his own abilities. Self-appointed, anointed and announced specialists will cease to exist if these boards are successful in limiting the practice of a specialty to those who are qualified.

The boards for the specialties have certain requirements that must be carried out before the candidate for certification is accepted. The requirements of the different boards for preliminary training vary considerably, from one that demands only from six months to a year of special training to one of the newer ones that consider a minimum of five years' training desirable and necessary before a candidate should even be considered for recognition. In many of the specialties there are ample opportunities for a young man desiring to equip himself to become a master in a certain branch of medicine, in others his opportunities are few and far between. Most of the specialties are well defined and sharply segregated divisions of medicine, but in internal medicine there is no such boundary, no such clear-cut boundary as demarks the specialist in such a branch as ophthalmology. Parenthetically, it should be noted that every doctor feels that he knows internal medicine and is qualified to practice internal medicine, at least he feels that way for some years after he has graduated and until he has devoted a fair part of his life to doing only one type of professional work. The consequence is that the otologist, the ophthalmologist, the obstetrician and the gynecologist all have special fields open to them for their development. There are even hospitals scattered throughout the country where patients with only one type of disease are treated, as for example the Wills Eye Hospital in Philadelphia, where only patients suffering from ocular disorders are admitted. There are very few institutions devoted solely to internal medicine, and very scanty are the number of residencies available in the field of internal medicine. This, of course, is largely relative. Proportionately there should be many more internists than ophthalmologists, gynecologists or obstetricians. Almost every person sometime or another has an internal disease and consults an internist, but males do not have babies nor do they have the female disorders that the gynecologist treats. Most people go through life without consulting an otologist. Relatively few are the number who have dermatologic diseases or disorders, and most of us are not crazy. Consequently there should be a large number of places and institutions where the young physician who wants to become an internist should have the opportunity of preparing himself for his future medical life.

The possibilities for instruction include (1) university fellowship, (2) clinic fellowship, (3) hospital residency, (4) preceptorship and (5) formal graduate training.

#### UNIVERSITY FELLOWSHIP

Probably the most satisfactory method for the future internist requiring the proper training may be work in a medical school. After a man has completed an internship there are many departments of medicine that provide for a limited number of recent graduates who are

titled fellows or assistants in medicine, depending on the particular university. These men receive a small salary, sufficient in itself at least to defray the cost of living with very little left over for outside pleasures or avocations. The university may permit the fellow to qualify and ultimately obtain a degree of Master of Science or even a Doctor of Philosophy. They spend from two to five years in the department of medicine and then leave in many instances to practice in cities and towns where there is no university medical school.

During the time that the man is holding his assistantship on a full time basis (I am speaking now from experience at Tulane), he has the opportunity of engaging in teaching, of working in wards and clinics and of devoting a goodly part of his time to special study, to investigative work or to follow out any particular bent that he may have in internal medicine. The opportunity is afforded of seeing a very considerable number of patients and to study them under the tutelage of men more mature in medicine and of greater clinical experience than has the young man, who works in the wards, in the outpatient clinics and in the laboratories. In our university clinic in the Hutchinson Memorial, patients are studied with extreme punctiliousness and in the most detailed fashion. Very complete long histories are taken and every diagnostic test is available for the study of the patient. In the Charity Hospital, on account of its enormous size, the younger man learns, from seeing a great number of cases, to recognize important ones and segregate them for more detailed observation. Roughly, about half a man's time is spent in the wards and clinics, about two hours a week is required of him for class work and the rest of the time he is more or less on his own. During his free time the men study electrocardiography and the interpretation of tracings, they interpret roentgenograms under the roentgenologist, they attend autopsies and they make special studies in any one of a variety of conditions. We feel that when a man has had this experience for three or more years he is a well qualified internist. Some of the men who have been with us have remained in the department, but the majority of them have gone out and practiced on their own responsibility. That their training has been good and that they have obtained a fairly complete knowledge of internal medicine are evidenced by their success in the practice of medicine. Some of these men have limited their work solely to consultation and office practice and have done well by themselves financially and have still maintained their interest in scientific medicine.

Unfortunately there are only a limited number of such positions open in the various medical schools of the country. Certainly there are not enough men to be trained in internal medicine by this method to meet the needs of the future.

#### CLINIC FELLOWSHIPS

Under the heading of clinic fellowships I have incorporated training which is given at some of the larger clinics in this country such as at Rochester and at Cleveland and which is given in many smaller clinic groups throughout the country.

Of course the most ideal method is that followed at the Mayo Clinic, where the teaching is really a function of the University of Minnesota Graduate School. The young man goes into the clinic and is required to spend some months in the fundamental sciences. He gets detailed training in the subdivisions of the clinic and finally is assigned to a more or less settled position for

the particular study of some special section of the anatomy, whether it is the stomach or the heart the esophagus or the lungs. This is an ideal method of training, but again only a limited number of men who want to get this training can be taken care of. Facilities are not sufficient and expense is prohibitive.

More in detail as far as the Mayo Foundation is concerned, it may be said that fellowships in the Mayo Foundation are sought for with avidity, consequently, it is possible to make careful choice of the recipients of the fellowships. The majority of the fellows have had two years of internship, although only one is definitely required. The appointments are made for a year and are renewed annually for three years. The prospective candidate for the master's degree spends two thirds of his time in his major field and at least one sixth in the minor. He may select work in any one of the fifteen diagnostic sections of the clinic or of the eighteen hospital services. Four services of six months each is the requirement for recommendation to advanced degree. Succeeding this period he may be appointed to a first assistantship in a clinic for one year. To fellows who have not had pathologic experience there is open a service of six months in the section on pathologic anatomy. Clinical seminars are conducted, pathologic conferences are held and other methods of instruction are carried on through the three year period. In addition to this training the young man is expected to present a thesis based largely on investigative work. He is kept in constant contact with the fundamental fields of physiology, bacteriology, biochemistry and biophysics during the entire period of his stay at Rochester and is expected to have at least six months in one of these basic subjects. Before the man is granted the degree of Master of Science he must have completed the three years work satisfactorily, presented a thesis and stand written and oral examinations. A fellow who has completed three years at the Mayo Foundation has obtained, as far as I know, the most complete formal training in graduate work available in this country.

In many clinics that I have observed throughout the country it is the custom to have one or two recent graduates associated with the clinic on a small salary basis for a limited period and partake of the activities of the clinic only in certain departments. Thus a man would be assigned solely to working with patients who have those diseases which are called internal diseases.

#### HOSPITAL RESIDENCY

Residencies in medicine are open to a limited number of men. The residency in most hospitals is not of sufficient duration to enable a man to get the preliminary training required by the American Board of Internal Medicine. On the other hand there are a goodly number of hospitals, more particularly university hospitals, where the resident may move up each year in rank until he has obtained a full residency in one or another of the departments of that institution. Recently in the Charity Hospital at New Orleans residents have been appointed to hold their positions for three years. During the first year in medicine the position is one of subordination, the second year of augmented duties, until in the last year the resident is the head of certain divisions of the hospital subject to the help and advice of members of the visiting staff but, being on duty all the time the responsibilities are his in great part during the time that the visiting staff is not at the institution.

The great difficulty about hospital residencies and more particularly those that are not connected with teaching institutions is that the residents do not have enough supervision. After a man has been in the institution for a year or more he begins to feel that he knows a great deal more than he probably does and is rather loath to call on his seniors for advice. The senior members of the visiting staff, on the other hand, feel that they have been relieved of routine duties and often have a marked tendency to neglect their hospital work and to let most of it fall on the shoulders of the younger man who is in the institution twenty-four hours a day. The medical neophyte, unless he does have good supervision, may fall into bad habits and may learn faulty methods. Often, too, he is given too much administrative work and becomes an administrator rather than a student of disease.

It seems that the most likely place to extend facilities for the training of future internists is through hospital residencies, inadequate and insufficient as many of these may be. Any hospitals with fifty or seventy-five beds devoted to medicine would be very much better off if they could have a keen, intelligent, studious younger man stay for three years as a hospital resident, supervising the work of the interns and studying the patients in detail. A very much larger number of such positions could be made available in various hospitals than now exists. At the present time there is listed in the bulletin *Hospitals Approved for Residencies in Specialties*, published by the Council on Medical Education and Hospitals of the American Medical Association a total of 212 residencies in internal medicine. This does not mean that there are that number of openings each year. Many residents stay in the hospital two, three or even more years. Furthermore, while most hospitals have only one or, at the most, two residents in medicine, teaching hospitals of a size comparable to those institutions having one or two residents will have from three to nine residents in medicine. It is obvious that the last group are to a considerable degree, rather than residents, teaching fellows whose administrative duties are minimal and who bear part of the teaching responsibilities as well as engaging in investigative work in the clinics and laboratories of the teaching institution. Unfortunately in some teaching institutions the resident is given a great deal of administrative detail to attend to, consequently, because such work must be done, his special studies and investigative work will suffer.

#### PRECEPTORSHIP

Medical training in the early life of this country was largely obtained through very limited university or medical school instruction and extensive teaching by preceptors. A student at Tulane in 1851 spent approximately four months a year from 8:30 a. m. to 5:30 p. m. listening to lectures and seeing operations. The intervening eight months was spent in the offices of practitioners of medicine doing jobs which varied from making up pills and lotions to dressing leg ulcers and bandaging fractures. A Tulane graduate of that time, in addition to his two years of formal training, had to have a preparatory year in which he worked in the doctor's office. Eight months was spent then in medical school instruction and twenty-eight months under the wing of a preceptor. Preceptorships in medicine have gradually disappeared, although, as I have said, at one time they were the pillar and prop of medical education. However, although a preceptor is no longer dignified in

this title, nevertheless in fact, if not in name, there are a great many preceptors in this country. Young men enter the service of older doctors to become office, hospital and general practice assistants to these men well advanced in their specialty and often well advanced in years. These men are able to impart a considerable amount of information by precept and example to their young assistants. A man preparing to be an internist could very well associate himself with some of the better well qualified internists, work for him for from three to five years on a small salary and learn enough to qualify himself to be called an internist. If the preceptor is the right type of man he will guide his apprentice in his reading and his study of cases and in planning for him special work. If he is not the right type of man a great deal depends on the younger man himself and his ability to teach himself.

If a considerable number of older men were to take the younger men under their wing the possibilities for training of younger men in a specialty and more particularly in the one in which we are interested in this discussion, namely internal medicine, are boundless. The plan is advantageous for both the teacher and his associate. The younger man can relieve the older one of a great many routine jobs that are time consuming but necessary. Certainly the young man can save the older man enough time so that the latter may devote a greater amount of time to his patients and to advising the younger man in return for relief from routine duties, and at a small salary.

It is my belief that a union such as this would be of invaluable assistance and help to the man who needs training, as well as a very real relief to the older man. Certainly there have been many hundreds of men who have worked under masters in medicine, such as Billings, Thayer, Cabot and Pratt, who have learned from their masters and who have acquired deep knowledge from and through them.

#### FORMAL GRADUATE TRAINING

The last method of obtaining a knowledge of internal medicine is by the recent medical graduate, after completing an internship, matriculating and entering one of the schools of graduate medicine. Here he may take courses of only a few months duration or he may take two or three years of graduate training. The great objection in my mind to this type of education lies in the fact that there is too much formal teaching. It seems to me that when a medical man has obtained his degree he should be put to a certain extent on his own initiative and should be permitted to develop himself under proper tutelage. Regular hours of instruction on printed schedules are likely to smother the fire of genius of a man who should have the responsibilities in conjunction with the care of the patient. There is also too great a tendency for professors to lecture at the student and to look on him not so much as a near equal but as a decided subordinate. Furthermore, in all the plans that I have sketched provision is made for the cure of some of the expenses, if not all, of the young man. In the graduate school with formal programs not only must he pay a healthy tuition fee but he must also support himself on borrowed, saved or inherited money. A young man may come out of the medical school with his purse empty but if he is willing to undergo some sacrifices for a few years he can at least live not in luxury, it is true but in comfort. Therefore the first four methods of training are open to the young

man who has little money. The becoming of a specialist will not be dependent on being an aristocrat of wealth but will be open not to the man exceptionally endowed with financial resources but to the average man. To spend some years in graduate schools a man must have a bulwark of money to carry himself along during his training. He is subsidized by these other methods of obtaining training, in some instances by money entirely, in others by money and in kind.

#### CONCLUSION

There are various methods whereby a candidate for certification in internal medicine may receive his preliminary training. Such opportunities as are available seem to be too limited in number to train the prospective future specialists in internal medicine.

1430 Tulane Avenue

### CONTINUING PROFESSIONAL EDUCATION

JAMES D. BRUCE, M.D.

ANN ARBOR, MICH.

There is no sphere of interest more intriguing to one concerned with education than that great no man's land which begins on graduation from college and the professional school. Undergraduate training in any field gradually develops in practice into a more or less acceptable working knowledge, but if a satisfactory quality is to be maintained the practitioner must have access from time to time to the newer standardized methods and practices. I believe that a great advance has been made in this particular phase of education as it applies to medicine in agreeing that neither the science nor the art of medical practice can be fully achieved in the undergraduate program of study and that continuing education must be provided in some way.

A decade ago the Council on Medical Education and Hospitals stated that postgraduate teaching was the outstanding medical problem of the day. At the last annual meeting of the American Medical Association, the Council authorized a commission to make a study of all postgraduate activities and needs. At the same meeting, representatives of about half of the states of the Union met informally to discuss postgraduate education and effected a permanent organization—the Associated Postgraduate Committee. A chairman, a secretary and three regional chairmen were elected and a request for a national study of the problem was made to the American Medical Association. Meanwhile, the committee decided to go forward with an exchange of experiences and further study.

Since there seems to be general agreement that a definite need for continuing education does exist, I shall not engage in affirmative argument. Nor shall I discuss the contribution that a well planned postgraduate program may make in the solution of the pressing problem of better and more equitably distributed medical care. I shall occupy the period allotted to me with an accounting of the postgraduate program undertaken in Michigan.

As the terms postgraduate and graduate are often used synonymously, may I explain that by the term postgraduate I refer to a program of teaching designed

to maintain the practitioner at a suitable standard of professional fitness. By graduate is meant those longer courses of study designed to prepare for teaching, research or practice of a specialty. However, the postgraduate program, while not designed to train specialists, does contemplate the necessary educational opportunities to maintain the specialist as well as the practitioner at a desirable level of professional efficiency.

Almost twenty years ago, the Michigan State Medical Society, concerned with the ever widening gap between medical knowledge and practice, inaugurated a program of postgraduate education for its members. This consisted of lectures and discussions once or twice a year

In 1926 representatives of the University of Michigan Medical School and of the Detroit College of Medicine and Surgery<sup>1</sup> were invited to meet with the council of the state medical society to consider ways and means of providing for the increasing needs for postgraduate education in Michigan. A committee, representing the two medical schools and the state medical society, was appointed to study the problem. The following year a report was made, the main points of which were as follows: That postgraduate education under academic direction was clearly called for, and that the University of Michigan, as a state-tax supported institution engaged in undergraduate medical education, had a particular

obligation to undertake such a program which, after all, was but a continuance of its undergraduate teaching designed to supply competent medical service to the people of the state.

The committee recommended that postgraduate teaching should not be confined to the University of Michigan Medical School and Hospital. It felt that there were many centers in the state which should be made available for postgraduate study where postgraduate teaching might be established.

Further, it was felt that the medical school of the university should, in its administration of the program, seek and maintain the closest possible cooperation with those extramural centers with the view of developing and utilizing existing facilities to the fullest, and that physicians interested in medical education and qualified to teach might be invited to become extramural members of the faculty.

It was further recommended that a department of postgraduate medicine be established in the medical school of the university to

direct these activities rather than that a new and separate organization or school be instituted, at least in the beginning.

In 1927 the board of regents approved the establishment within the medical school of a department of postgraduate medicine, under the usual conditions governing a department of the medical school. At the annual meeting of the state medical society in 1928, the council approved two committees, one, the Advisory Committee on Postgraduate Education representing the University of Michigan Medical School, the medical profession and the state department of health, the other, a special committee in the city of Detroit (Wayne County Medical Society) where immediate developments were contemplated to advise on local arrangements.

<sup>1</sup> Now Wayne University College of Medicine.

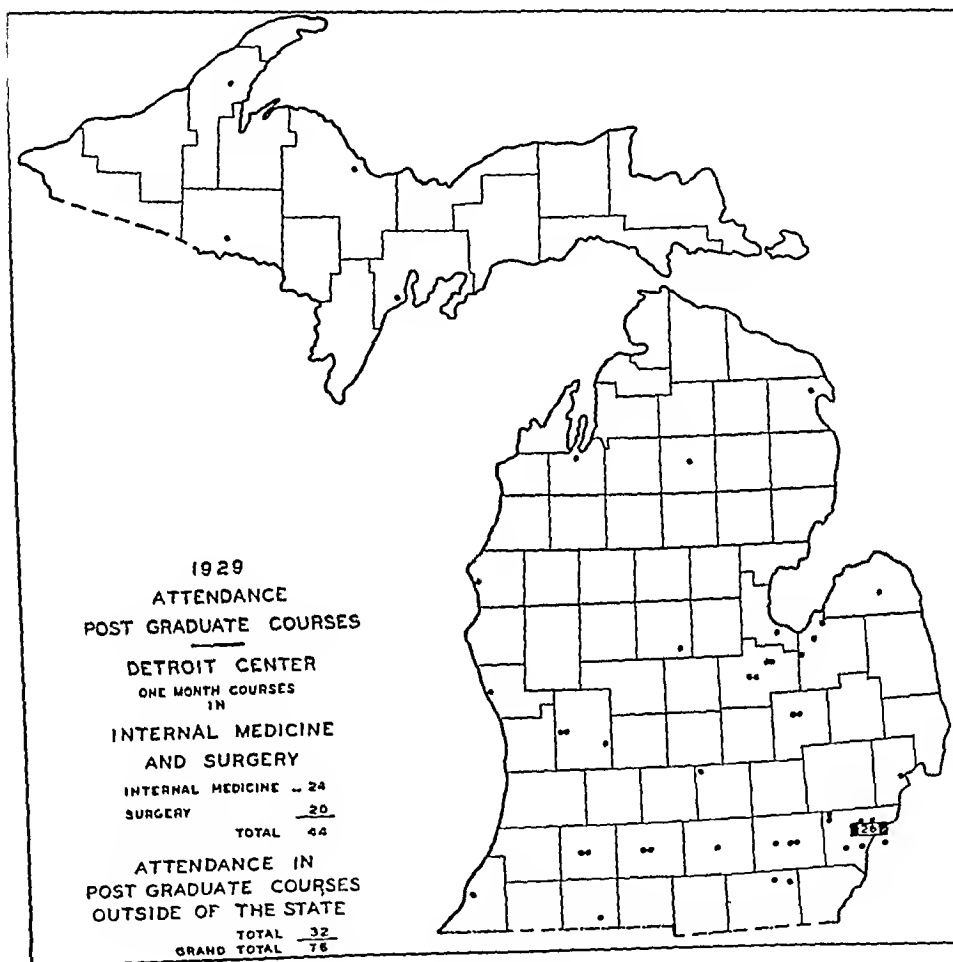


Fig. 1—Attendance in 1929

for periods of from one to two days in the principal centers of population of each of the fourteen councilor districts of the state. This program proved very acceptable, and the attendance was encouraging. Almost one third of the income of the society was devoted to this work.

From the beginning, however, few who had given serious thought to the matter expected this casual type of teaching to meet the needs of the profession. It was felt that it would serve to stimulate our members to seek other sources of instruction where their needs and interests would be adequately met. This did not prove to be the case. There was no increase in attendance of our members on the longer and more academically arranged courses being given in various medical centers of the country. It was then decided to appeal to our two medical schools for advice and assistance.

The program has been developed in accordance with these early recommendations, namely, that postgraduate education be carried on under academic direction, that responsibility for it be centered in the undergraduate medical school and that it be closely coordinated but sufficiently decentralized to be within reach of every practitioner of the state.

Practitioners' courses of one month's duration, given in 1929 and 1930, while encouraging in point of attendance, proved too short for adequate presentation of necessary subject matter and the time too long for the average practitioner to absent himself from practice. It was then that we decided on one-week courses in various subdivisions of practice, and subsequently on extending the work into the state in a continuous four year program of eight days each year in several centers. As time went on, longer and more carefully supervised courses were asked for. To provide for these, four and eight week courses were developed in the university undergraduate summer session, and special opportunities were provided throughout the year to meet individual needs.

During 1936-1937, through an appropriation from the federal government, the state department of health financed a program in maternal and child welfare in two of the more sparsely populated areas of the state, and all the subjects pertaining to these fields in the extramural programs were paid for by that department. Federal grants have been utilized to extend but not to replace the regular program, and all courses, regardless of their origin or support, are cleared through the Advisory Committee on Postgraduate Education of the State Medical Society.

In addition to the regular program, there are two educational activities importantly affecting practice in Michigan which may not have counterparts elsewhere. Centers for care of indigent children are maintained by the Children's Fund of Michigan at Traverse City and Marquette—distances of 300 and 500 miles from the university. Both are subsidiaries of the University Hospital and members of the staffs hold appointments in the University of Michigan Medical School. Teaching clinics are held regularly and are well attended by the local physicians. Consultation services are at all times available and prove acceptable to the profession. Besides being permanent centers for care and teaching in children's diseases, these units are utilized in the state postgraduate program.

Another important contribution is being made by the W. K. Kellogg Foundation through its educational

activities in seven counties of the state. Originally designed for health service to children, this organization has now embarked on a broad program of education for community betterment with emphasis on postgraduate education in the professional fields. Besides attendance on the state postgraduate program in medicine, physicians in this area have frequent local meetings, sponsored by the foundation, for which speakers are assigned by this department. Last year, courses were subsidized by the foundation for 103 physicians at centers outside the state.

The Michigan State Medical Society has approved certification for postgraduate study. Under present

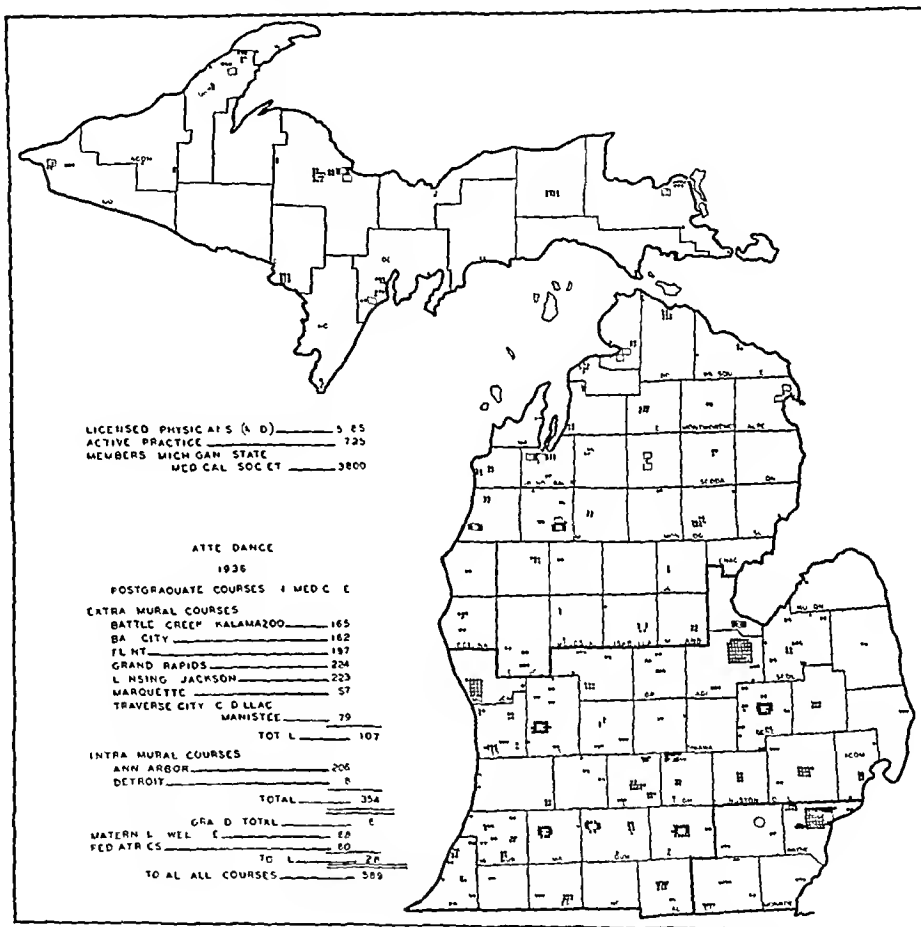


Fig. 2—Attendance in 1936

arrangements there are four methods whereby the practitioner may satisfy the requirements of the state medical society for a certificate in postgraduate education:

- 1 Through attendance on the extramural course over the four year period.
- 2 Through attendance on a one week composite of the extramural course given yearly in an intramural center over the four year period.
- 3 Through attendance on the intramural intensive courses, which may be taken in one year or over a period of four years.
- 4 Through comparable study periods here or elsewhere.

None of these outlined courses, except the regular summer session courses, carry university credit.

There are educational requirements for membership in practically all of the societies in special fields of practice. These regulations are made not only to raise



the qualifications of the membership but also for the information of the public as to where it may look with assurance for adequate medical care. Is it unreasonable, then, to predict that family practice will gradually assume not only the dignity of a specialty but also a qualifying standard? From time to time the question has been raised of requiring postgraduate attendance of the family physician for maintenance of membership in the state society. While arriving at no conclusion, the Michigan State Medical Society has given this matter considerable thought and feels that, if such requirements are deemed desirable credit should be given for many professional activities apart from attendance on formal teaching programs, namely, teaching, research, contributions to medical literature, active membership in learned societies, membership on a hospital staff and attendance on local, state, national and other society meetings. These and other considerations might properly be included in requirements for membership.

During the eight years that this program has been carried out there have been 4,774 registrations, 2,127 Michigan physicians taking from one to seventeen courses each. In 1929 seventy-six Michigan physicians took postgraduate courses, forty-four in the Michigan program and thirty-two outside the state. In 1936 there were 1,589 in attendance on the state courses and 143 on courses outside the state, a total of 1,732.

The cost of the program last year was about \$10 per capita. An increase in attendance to 2,500, which is our present objective, while not materially increasing the present expenditure would greatly decrease the per capita cost.

The program outlined was not set up as a final standard but rather to provide a starting point based on the maximum amount of time the members of the profession were willing to devote to postgraduate education. It is by no means considered a solution of the problem. It is meeting a well defined need, and it is pointing the way to further and probably more important efforts in continuing education.

A pioneer in postgraduate medical teaching some years ago gave four significant reasons for the difficulties encountered in the program with which he was connected: first the failure of the hospitals to participate in the movement, second the lack of understanding on the part of the academic group of the needs of the practitioner, third, the lack of method and experience in teaching of many of the willing volunteers, fourth, the apathy of the profession as to its needs for further study. Consideration should be given to this experience in the planning of a postgraduate program. We too have encountered each of these difficulties in greater or lesser degree. That they are not insurmountable obstacles and that they can be overcome by careful planned mobilization of all agencies—the medical schools, the profession, the department of health and the hospitals—are proved by the progress of the Michigan program.

The advantages of centralization of the direction of the postgraduate program in the university are those associated with the function and permanence of the university itself. Academic direction makes possible a long-term program, unhindered by constantly changing leadership with its inevitable accompaniment of ebbs of enthusiasm and valleys of relative indifference.

It facilitates the proper deposition of records and credits, the correlation of special and general courses and the selection and distribution of speakers and material to insure uniformity of presentation. The centralization of the direction further enables a successful correlation of activities in the health education of the public with the activity of the physician, prevents dissipation of effort and funds and permits a constant study of the field of practice and its changing need.

The experience over the past eight years seems to confirm the wisdom of the decision of the profession to place the responsibility for the direction of postgraduate education in the undergraduate school. In the continuing education of the family physician the tendency of the teacher-clinicians and the interest of the student-practitioners turn naturally toward clinical applications. Year by year the practitioner finds himself removed further and further from the science that underlies sound medical practice. In order to safeguard the proper balance between fundamental knowledge and practice, postgraduate teaching must identify, briefly but positively, every new procedure with the underlying principles of its operation. Postgraduate medical instruction should be directed by those intimately in touch with the sources of knowledge in their respective fields. In other words, the responsibility for continuing education in medicine should center in the undergraduate medical school, where there are teachers trained to give this emphasis. As the demand for postgraduate opportunities increases, personnel and equipment may be added from time to time, thereby not only providing for postgraduate needs without duplication but also strengthening the resources of the school for undergraduate requirements. Then, too, the needs of the practitioner, as revealed in postgraduate teaching contacts, are found to be enlightening and helpful in planning the instruction of future doctors.

The difficulties of evaluating a program such as this will be apparent. In attempting such a study, consideration is being given to several other movements—efforts to improve hospital standards, the gradual replacement of older men by those more recently and more adequately trained and, finally, the influence of an increasing number of highly trained specialists in the various fields of medicine. The relative usefulness of these factors in raising the standards of practice need not cause concern here. Our studies do show a notable improvement in the quality of professional service during this period and this is what we are most interested in at this time.

These experiences in medicine have led to similar developments in other professional fields. About four years ago, at the request of the president of the University of Michigan, the board of regents authorized a committee to study the needs for postgraduate education in three other health fields, dentistry, public health and nursing. The studies that followed showed needs and opportunities similar to those found in the field of medical practice and led to the recommendation that a beginning in postgraduate teaching be made in each of these, including also the teaching profession which touches so importantly on health problems in the school system of the state. Postgraduate work began immediately in dentistry, the year following in public health and in education and last year in nursing.

As the title of this paper indicates, it was my purpose to cite our experience in these several fields but the interest in postgraduate education in medicine

is so great and the problem so pressing that I have reviewed only our experience in this field. However, progress in continuing education in all these fields, as well as in a program of health information for the public, is essential if an effective and orderly health service is to be achieved.

University Hospital

## THE TEACHING OF NUTRITION TO STUDENTS OF MEDICINE

S P LUCIA, MD

AND

NINA SIMMONDS, ScD

SAN FRANCISCO

Although it is obvious that the study of nutrition should have a place among the fundamental courses in a medical school, it has not yet been included in the curriculums of many schools. Just as the study of pharmacology provides basic knowledge needed for the writing of prescriptions, so the study of nutrition should precede and be prerequisite to the prescribing and ordering of diets. Yet, in the majority of medical schools, students receive their only instruction in nutrition in their preliminary courses in biochemistry and physiology. Hence they obtain but limited knowledge of normal nutrition, scant knowledge of dietetics and no knowledge at all of the nutritional state and needs of diseased persons.

Realizing the need for an understanding of nutrition, several years ago we organized a voluntary course consisting of fifteen lectures and practical demonstrations on nutrition and diet in disease. So satisfactory were the results that we take this opportunity to report our plan for the benefit of others.

The instruction was conducted in the manner of a seminar. A formal presentation of each subject was given by a physician research worker in nutrition or dietitian. A free discussion of the subject followed. The students were interrogated on fundamentals of physiology, biochemistry, pathology and nutrition. Information on the pathologic physiology of the disease under discussion was reviewed. Practical demonstrations, prepared by the dietitian, were presented. Reasons were given for the diet prescriptions that were advised. When feasible, mimeographed material of the text was provided. In addition, certain students were assigned special diets to calculate, and these were presented for discussion at subsequent seminars. In each case the student was asked to give the reasons for his prescription, to justify his selection of foods and to discuss them from the standpoint of their physiologic appeal, palatability, number of calories per portion, digestibility, amount of residue, and quantity and quality of protein, fat, carbohydrate, vitamins and minerals.

The following summarizes briefly the work which was covered.

### THE NORMAL DIET

The first sessions were devoted to discussions of the normal diet and the dietary properties of foods. It was explained that many diseases are in part the result of metabolic disturbances resulting from long-continued food deficiencies. It was shown how the normally

balanced diet forms the basis of special diets. Trays representing normal diets were demonstrated, and, by additions and subtractions, the quality and quantity of the foods on the trays were altered to fit special dietary prescriptions. The food shown was discussed from the standpoint of palatability, attractiveness and dietary properties.

A discussion followed of the energy needs of the body and of energy-producing foods, and of the protein, mineral, vitamin and water requirements and how they are satisfied.

The students were asked to record in detail their food intake for a period of ten days, in order to compare their dietary habits with the calculated optimum diet. These records were discussed in the light of the subject matter presented.

A tray of foods demonstrating various vitamin-containing foods was shown, and these were contrasted with commercial vitamin preparations from the standpoint of relative cost, convenience of administration, and psychologic effect.

To sum up the normal diet a basal or foundation diet was described and demonstrated. The fundamentals of menu building were explained, and attention was drawn to the importance of adequate quantities of vitamins and of mineral salts. The students were asked to alter the basal diet in calories and bulk without changing the vitamin and mineral salt content. Adjustment of this menu for a person of slender build and also for one of stocky build showed clearly the fundamentals underlying the planning of diets for persons of different physical and constitutional types.<sup>1</sup>

### CALCULATION OF DIETS

The diabetic diet was used to illustrate the importance of quality and quantity of foods and to show methods of calculating diets. Emphasis was placed on the importance of planning a diabetic diet so that a minimum of insulin would be needed. The significance of the relative rates of absorption of carbohydrate from 5 to 10 per cent fruits and vegetables was discussed. It was demonstrated that the diabetic diet is apt to be low in vitamin B and that special provision must be made for its inclusion in the diet as prophylaxis against neuritis. It was stated that the content of vitamin B in the "normal diet" also is apt to be inadequate.

### THERAPEUTIC DIETS AS MODIFICATIONS OF THE NORMAL DIET

Several sessions were devoted to the study of diet in disease. Attention was called to the fact that the terms nonresidue, liquid, soft, light, bland and general diet are not standard in all hospitals.

The normal diet was varied to meet the needs in specific diseases by altering (1) energy content, (2) consistency and residue, (3) amount of protein, fat and carbohydrate, (4) amount of the different mineral elements, (5) amount of the different vitamins, (6) water content and (7) acid-base balance. For each disease the students were asked to submit properly

1 The following books were recommended:  
Bogert L. Jean and Porter Marie T. *Dietetics Simplified* New York: Macmillan Company 1936.  
Barberka C. J. *Treatment by Diet* ed 2 Philadelphia J. I. Lippincott Company 1935.  
Stern Frances. *Applied Dietetics* Baltimore: Williams & Wilkins 1936.  
Waller Dorothy S. *Nutritive Value of Foods* Ann Arbor: Michigan George Wahr 1933.  
Best C. H. and Taylor N. B. *The Physiological Basis of Medical Practice* Baltimore: William Wood & Co. 1930.  
2 Bogert and Porter. *Dietetics Simplified*.

From the Department of Medicine, University of California Medical School.  
Read before the Thirty-Fourth Annual Congress on Medical Education and Licensure, Chicago, Feb. 14, 1944.

calculated diets to demonstrate each type of alteration. The therapeutic indications for these altered diets were given in detail.

It was emphasized that it is the physician's duty to see that all special diets supply the necessary nutritional substances in adequate quantity so that states of malnutrition do not develop. If a special diet does not contain optimal quantities of vitamins, minerals and proteins, it is certain that a deficiency disease will develop. When it is necessary to put the patient on a highly restricted diet or a qualitatively deficient one, such a regimen should not be maintained for long.

#### HOW TO ORDER HOSPITAL DIETS

In teaching the students how to order hospital diets, the following instructions were given:

1. Learn what the patient would receive on the regular hospital menu before asking for a special diet.
2. Order diets by quantity of food elements (carbohydrate, fat, protein, minerals, vitamins and water) rather than by name (e. g., 'bland diet').
3. Do not make the diet unnecessarily restrictive.
4. Learn whether a patient is eating all the food on his tray before ordering interval feedings.
5. Before prescribing a weight-reducing or a weight-increasing diet, learn the previous caloric intake. By gradual increases or reductions in the quantity of food, psychologic or physical difficulties will be avoided.
6. Feel free to consult the dietitian in regard to all dietary problems. Through experience with patients and their problems, she is often able to give valuable suggestions and advice.

#### PROBLEMS CONCERNED WITH FORCING FLUIDS

Certain difficulties encountered in the forcing of fluids were considered. The palatability of flavored fluids in various illnesses was shown to be of importance. It was pointed out that a well person may enjoy any kind of fruit juices, whereas the sick person, especially if he is febrile, may rebel at the prospect of ingesting large quantities of these same fruit juices.

It was emphasized that, when large amounts of fluid are needed, a fluid without pronounced flavor and with a low sugar content is tolerated best. The students were allowed to taste various kinds of fruit juices and other beverages. The wide variation in cost of different drinks was shown. It was pointed out that colored fluids have more appeal for children than uncolored fluids.

#### DIETARY FADS

Dietary fads, and regimens fostered by so-called nutrition and health lecturers, were discussed in detail. Their influence in making many persons food conscious is evidenced by the increase in the number of "health-food" stores throughout the country. Although some good has been accomplished by the focusing of attention on the importance of diet in maintaining health, yet harm has often resulted from the unbalanced diets so often advised. Furthermore, the foods sold are in many cases unnecessarily expensive.

It was suggested that each student keep a file of diets sponsored by food faddists, so that he may have knowledge of and be able to discuss such diets with his patients.

#### SELECTION OF FOODS

The assignment of practical problems and the use of demonstrations in the teaching of dietetics and its relation to disease have obvious value from the standpoint of selection of foods. The writing of prescriptions and the observation of the diet prescribed make for evident

errors in knowledge and judgment. The following incidents illustrate the manner in which such errors were brought promptly to the attention of the students. On one occasion a bland diet prescribed by a student was found to include lettuce and tomato salad; the error was in part due to his fondness for this particular food. Another student who planned a low fat diet discovered, on demonstration, that his selection of food was most unappetizing. His comment was that the "diet looked much better in writing than the food did on the tray." But to the trained eye, the menu would not have looked appetizing even in writing! By means of such glaring errors as these, the students learned to appreciate the importance of careful selection of food from the standpoint of the patient whose appetite is not easily tempted.

#### DIETARY CONSULTATION

One important feature of the instruction was the provision of an expert dietitian to act as consultant in the outpatient department. The students were advised to confer with her on details of diet and to discuss with her the dietetic problems, both economic and physiologic, of their patients. By these means and by consultation with the hospital dietitian, close correlation between instruction and practical application was obtained.

#### SUMMARY

Our students were impressed with the importance of malnutrition as a cause of disease and with the significance of diet as a therapeutic agent in the prevention and treatment of disease. They were afforded an opportunity to review the physiology and biochemistry of digestion in the normal person and to learn of the alterations that occur in diseased persons. The application of diet to the treatment of specific diseases was shown. Demonstrations were given illustrating the importance of vitamins and minerals in the maintenance of good health. The problem of the subclinical vitamin deficiencies was discussed in detail.

By demonstrations, it was shown that palatability, proper combinations of food, attractiveness, service and cost of food are important considerations in the planning of diets.

The writing of dietary prescriptions by name was discouraged. By instruction in the principles of the science of nutrition, our students learned to write intelligent dietary prescriptions based on the broadest application of these principles.

University of California Hospital

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**Deaf-Mutes**—According to Dr. Harold L. Pabcock, professor of otology at Boston University School of Medicine in a lecture April 5, at the university's school of education, there were 44,885 deaf-mutes in the United States, in 1937, or one to every 2,359 of the population. Two forms of deaf-mutism are recognized: the congenital and the acquired; the latter predominating in numbers by about two to one. The dominance of deaf-mutism is a family taint, and an individual coming from such a family may pass the defect on to his children although he himself is free from the disease. Children of normal mental development who lose their hearing after the age of 6 rarely become dumb. The most important single cause of acquired deaf-mutism is cerebrospinal meningitis; other infections that may cause it are scarlet fever, measles, diphtheria and mumps. As the outlook for the return of hearing, in both forms of deaf-mutism is practically hopeless, the problem of treatment resolves itself into a problem in education.

## MEDICAL TREATMENT OF HYPERTHYROIDISM WITH A HIGH FAT DIET

SAMUEL SOSKIN, M.D.

AND

I. A. MIRSKY, M.D.

CHICAGO

The current surgical treatment of hyperthyroidism is attended by a high percentage of beneficial results and entails only a relatively short period of invalidism. This state of affairs, gratifying though it is, has left little or no opportunity for attempts at medical treatment in severe cases of the disease. A patient who absolutely refused to submit to surgical operation offered us such an opportunity. The results of medical treatment in her case were strikingly successful and warrant further trial of the form of therapy which we employed.

Bed rest and high caloric diets are useful adjuncts in the treatment of hyperthyroidism but are in themselves of very limited effect in severe cases. It is generally agreed that the use of iodine in severe hyperthyroidism is effective as a temporary, palliative measure but should be restricted to the preparation of the patient for surgical intervention. Our patient did not receive any iodine (except that which might have been incidentally present in the ordinary foodstuffs of her diet) either before or after she came under our care. The rationale of our treatment was based on previous experimental work demonstrating that the composition of the diet might influence the action of administered thyroxine or the course of a spontaneously occurring hyperthyroid state.

Abelin and his co-workers<sup>1</sup> have shown that rats fed on a diet of green vegetables and rich in minerals and vitamin A become resistant to the action of thyroid extract as judged by their storage of liver glycogen. Several subsequent clinical reports<sup>2</sup> have given evidence of moderate benefit obtained from the use of vitamin A, or fatty substances containing it, in cases of exophthalmic goiter. More recently Hoffman<sup>3</sup> has demonstrated that the feeding of olive oil to thyroxine-treated mice will prevent the fall in serum lipase which would otherwise occur. These fat fed animals also survived longer than similarly thyroxinized control animals. Loumos<sup>4</sup> has also demonstrated that the feeding of certain pure fats will cause rats to be resistant to administered thyroid substance as judged by weight loss. These results are consistent with the observations of Bodansky and Duff<sup>5</sup> and of Dunforth and Loumos<sup>6</sup> on the decreased effectiveness of thyroid extract in pregnancy, in which condition the blood fats are apt to be increased. These experimental results suggested the possibility that the hypolipemia of hyperthyroidism might be more than a secondary or incidental effect of the disease. We therefore proceeded to treat our patient with a high fat diet.

From the Max Pam Unit for Metabolic Research and the Department of Metabolism and Endocrinology, Michael Reese Hospital.  
Read by title before the American Society for Clinical Investigation in May 1937 (abstr. J. Clin. Investigation 16:666 [Aug.] 1937).

<sup>1</sup> Abelin I and Schonenberger A. Ztschr f d ges exper Med 88:528 1933. Abelin I. Ztschr f Vitaminforsch 4:120 (April) 1935.

<sup>2</sup> Wendt H. Munchen med Wchnchr 82:1160 (July 19) 1935.

<sup>3</sup> Hoffman M H. Effect of Thyroxine and Antithyroid Substances on the Serum Lipase. Arch Int Med 54:427 (Sept.) 1934.

<sup>4</sup> Loumos S. Proc Soc Exper Biol & Med 31:895 (May) 1934. Ibid 33:424 (Dec.) 1935.

<sup>5</sup> Bodansky K. Meyer and Duff Virginia B. Endocrinology 20:537 (July) 1936.

<sup>6</sup> Dunforth D N and Loumos S. Proc Soc Exper Biol & Med 31:570 (June) 1936.

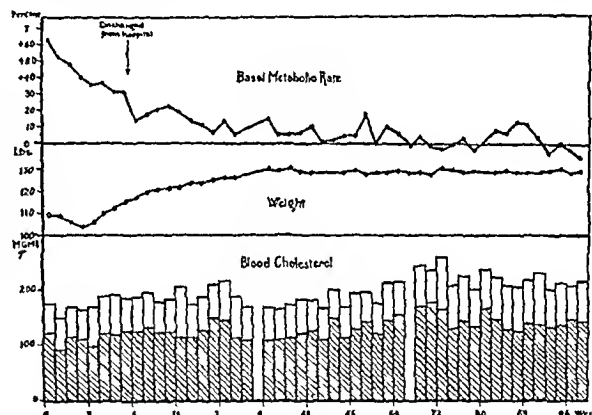
## REPORT OF CASE

**History.**—Mrs R. J., a white woman, aged 36, a housewife, seen in the Mandel Clinic of the Michael Reese Hospital, presented the symptoms and signs of severe hyperthyroidism. It was the consensus of both the medical and the surgical members of the thyroid group that prompt subtotal thyroidectomy was indicated. When it became apparent that the patient was adamant in her refusal to submit to operation, she was offered and accepted the experimental form of therapy to be described.

July 11, 1935, the patient was admitted to the Max Pam Unit for Metabolic Research of the Michael Reese Hospital. There was nothing significant in the history prior to the onset of the present illness. The menses began at the age of 14, occurred regularly every twenty-eight days, lasted two days and were not painful. The patient had been married for nineteen years and had two children alive and well. There had been two induced miscarriages. She smoked little, took alcohol in moderate amounts and stated that she did not use drugs.

The onset of the present symptoms occurred four months prior to admission. The patient noticed nervousness and irritability, increased perspiration and tremor of the hands. These symptoms progressed and, in addition, there were increasingly frequent attacks of dull, aching, substernal pain. Physical exertion was accompanied by dyspnea and occasionally also by swelling of the ankles. During this period there was a loss of 14 pounds (6.4 Kg.).

**Physical Examination.**—The temperature was 98.6 F., pulse rate 116 per minute and respiratory rate 20 per minute, at rest in bed. The weight was 111½ pounds (50.5 Kg.). The skin



The plotted values for the basal metabolic rate, weight and blood cholesterol respectively represent average values for periods of two weeks from the time of admission to the hospital to the present. The vertical bars representing the blood cholesterol values indicate total cholesterol. The cross-hatched portion indicates cholesterol esters while the clear portion indicates the free cholesterol.

was flushed and the patient was perspiring freely. There was some increase in the width of the palpebral fissures but no exophthalmos. There was a definite lid lag but no other eye signs. The thyroid gland was diffusely enlarged and smooth in consistency. There were no abnormalities in the respiratory system or abdomen. The apex beat of the heart was diffuse. Percussion revealed the left cardiac border to be 10 cm. from the midsternal line. The rhythm was regular and there were no adventitious sounds. The blood pressure was 148 systolic, 74 diastolic. There was a fine tremor of the fingers. The deep reflexes were slightly hyperactive. Sensation was normal.

**Laboratory Examination.**—There was a faint trace of albumin in the urine otherwise it was normal. Examination of the blood revealed red blood cells 4,200,000, hemoglobin 75 per cent (Sahli), white blood cells 5,900, neutrophils 65 per cent, lymphocytes 20 per cent and monocytes 15 per cent. Chemical examination of the blood revealed sugar 89 mg. per hundred cubic centimeters, total cholesterol 176 mg. and cholesterol esters 123 mg. An electrocardiogram showed slurring of the QRS complex in lead 3, negative ST in lead 2 and tall and sharp peaked T in lead 2. These appearances were interpreted as

suggestive of myocardial involvement July 13, the basal metabolic rate was +62.9 July 16, +53.3, July 19, +55.2

**Progress**—While in the Hospital For two weeks following her admission, while the control data were being obtained the patient was given a diet consisting of protein 80 Gm, fat 80 Gm and carbohydrates 400 Gm, total calories 2640

July 24 the diet was changed to protein 90 Gm, fat 230 Gm, carbohydrates 90 Gm, total calories 2790 For a period of twenty-three days (August 9 to September 2) 3 Gm daily of cholesterol was added to the diet by incorporating it in the butter ration Rest in bed was enforced No other form of therapy was employed at any time

There was a gradual regression of all symptoms and signs of hyperthyroidism from the time at which the high fat diet was started The addition of cholesterol to the diet had no apparent effect on the rate of improvement and was discontinued for this reason The attacks of substernal pain, which occurred almost daily at the time of admission became less frequent and did not recur after August 8 The patient was discharged from the hospital October 14 At that time the basal metabolic rate varied around +30, her blood pressure was 130 systolic, 80 diastolic, and her weight was 118 pounds (53.5 Kg)

Since Discharge from the Hospital The patient has continued on the same high fat diet at home and has returned for observation once every week to date, with few exceptions At each visit she has been questioned as to recurrence of symptoms a basal metabolic determination has been made and blood has been drawn for estimation of cholesterol Other examinations have been made, but at less frequent intervals

Since about January 1936 the patient has presented no symptom, sign or laboratory evidence of hyperthyroidism, either residual or recurrent The accompanying chart graphically demonstrates the progressive changes in the basal metabolic rate body weight and blood cholesterol from the time of her admission to the hospital to the present

At present (October 1937) the patient feels perfectly well and is able to undertake as strenuous activity as any normal person Her basal metabolic rate has varied around  $\pm 0$  and her blood cholesterol has remained above 200 mg per hundred cubic centimeters for many months A recent electrocardiogram shows T in leads 1 and 3 smaller, in lead 3 now inverted and in lead 4 normal There was a left axis shift The interpretation was that the electrocardiogram was within normal limits

Her weight has remained constantly about 130 pounds (59 Kg) and has not gone higher only because she has voluntarily reduced her total caloric intake in order to avoid overweight

#### SUMMARY

In the case here presented, of acute and severe hyperthyroidism, the attending physicians and the consulting surgeon were in complete agreement as to the necessity for prompt surgical intervention Because the patient absolutely refused to submit to thyroidectomy it was deemed justifiable to attempt to treat her by medical means The treatment, for reasons outlined, consisted of a high fat diet Iodine was not administered at any time On this treatment the patient made a striking and complete recovery, which has persisted for almost two years during which time she has been observed at weekly intervals

It should be clearly understood that we do not believe that this single case warrants the routine employment of our dietary treatment in patients who are willing to submit to the established surgical therapy It is possible that our patient might have recovered spontaneously under any expectant form of treatment Furthermore, the time required for our treatment even if ultimately proved to be generally effective, makes it economically less practical than the surgical method Nevertheless our results should serve to stimulate interest in the application of the more recent knowledge of thyroid physiology to the treatment of hyperthyroidism Meanwhile they suggest a mode of procedure which may be of value

in certain cases (such as ours) in which surgery is refused or in which the hazards of surgery are too great Since our opportunities for the further testing of this form of therapy are limited, we are reporting our experience in order that others may be able either to confirm or to deny its value, as opportunities present themselves

Twenty-Ninth Street and Ellis Avenue

## THE RELATIONSHIP OF VITAMIN A TO THE HEALTH OF INFANTS

### FURTHER OBSERVATIONS

J M LEWIS, MD

AND

L H BARENBERG, MD

NEW YORK

In previous communications<sup>1</sup> we stated that the average diet of artificially fed infants contains an adequate amount of vitamin A This contention was based on the fact that no improvement in the nutritional status or increase in the immunity to infections was brought about by adding large quantities of vitamin A in the form of cod liver oil, halibut liver oil or carotene (which contains the provitamin) to the diet employed in the Home for Hebrew Infants The diet used at this institution is similar to that which is generally prescribed in

TABLE 1—Approximate Number of International Units of Vitamin A in the Low and in the High Vitamin A Diet, as Compared with the Number in the Average Diet of Infants

Age Months	Low Vitamin A Diet	High Vitamin A Diet	Average Diet
2	500	17,165	2,100
6	700	1,415	7,000
12	1,000	17,715	4,000

private practice by pediatricians and by general practitioners For example, from 1 to 2 ounces (30 to 60 cc) of milk is given per pound (453 Gm) of body weight, the amount depending on the age of the infant, orange juice is prescribed at the age of 6 weeks, cereal at 4 months, vegetables at 6 months, desserts at 8 months eggs at 10 months and meat at 1 year

Recently Mackay<sup>2</sup> carried out an investigation on the vitamin A requirement of infants in the outpatient department of a London hospital Sixty infants were given extra amounts of vitamin A, and fifty eight infants receiving the usual diet served as controls These infants were observed for an average period of eight months Mackay found that there was no difference in the morbidity or the mortality rate for the two groups of infants nor was there any distinction in the rate of growth However of sixty infants who received extra vitamin A sixteen, or 27 per cent, had some form of infective cutaneous lesion whereas of the fifty eight infants in the control group, thirty or fifty-two per cent, had cutaneous infections It should be mentioned, however that Mackay included as cutaneous infections such conditions as diaper rash and intertrigo She expressed

From the Home for Hebrew Infants.  
1. Barenberg, L. H., and Lewis, J. M. The Relationship of Vitamin A to Respiratory Infections in Infants. *J. A. M. A.* 95: 177 (Jan. 16) 1932. Hess, A. F., Lewis, J. M., and Barenberg, L. H. Dietary Requirement of Vitamin A Supplement. *ibid.* 101: 637 (Aug. 2) 1934.  
2. Mackay, Helen M. M. Vitamin A Deficiency in Children. *Arch. Dis. Childhood* 9: 133 (June) 1934.



the opinion that infections of the skin are one of the earliest manifestations of vitamin A deficiency and that adding supplements of vitamin A to the diet of infants will diminish the incidence of these infections

On the other hand, Blackfan and Wolbach<sup>2</sup> found that in thirteen infants suffering from vitamin A deficiency "infection of the skin, localized or general, was noticeable by its infrequency" This observation is of considerable importance because of the fact that six of these infants suffered from xerophthalmia, a manifestation of marked vitamin A deficiency All six infants had received a diet grossly inadequate in vitamin A Two received skimmed milk, two boiled condensed milk and one a preparation of soy bean flour (sobee), and the sixth could not swallow sufficient food on account of congenital malformations

The diagnosis of vitamin A deficiency in the case of six infants not exhibiting xerophthalmia, in Blackfan and Wolbach's study, was made post mortem when the characteristic histologic changes in the epithelial tissues were noted, metaplasia from columnar or cuboidal into keratinized stratified squamous epithelium Five of these infants had chronic generalized infections, and one had suffered from congenital malformation of the bile duct They had received a diet which included cod liver oil, in fact four of them were given cod liver oil with dilutions of cow's milk for a considerable period while at the hospital It seems apparent, therefore, that the development of vitamin A deficiency in this group of infants cannot be accounted for by an inadequacy of vitamin A in their diet but was due, as the authors stated, "to grave metabolic disturbances interfering with proper absorption, storage and utilization of vitamin A or its precursor, carotin" The state of nutrition was estimated in twelve of the cases of vitamin A deficiency reported by Blackfan and Wolbach All of the infants were undernourished, seven were from 20 to 40 per cent below normal weight, three were from 40 to 60 per cent below the average and two were 62 and 68 per cent, respectively, below the average Twelve of the thirteen patients showed evidences of infection of the respiratory tract, and in nine instances involvement of the respiratory system consisted of a generalized infiltration of the lungs

TABLE 2—Incidence and Severity of Infections of the Respiratory Tract in the Two Groups

Groups	Number of Infants	Average Age at Beginning of Study, Mo	Average Period of Observation, Mo	Total Number of Infections	Infections per Infant	Severity		
						Mild %	Moderate %	Severe %
Small amount of vitamin A	31	3.1	6.8	1*	3.2	64	22	14
Large amounts of vitamin A	33	3.2	6.8	144	4.4	61	15	24

In view of the fact that many physicians rely on vitamin D milks or viosterol for the prevention of rickets in infants and therefore do not prescribe cod liver oil or other antirachitic preparations containing vitamin A, the question arose as to the margin of safety with respect to vitamin A in the average diet of infants Is the diet barely adequate in vitamin A or is the vitamin A content so excessive as to insure a wide margin of safety? Previous studies as already mentioned have indicated that the average diet is adequate in vitamin A

Blackfan K D and Wolbach S B Vitamin A Deficiency in Infant J Pediatr 1: 9 (Nov) 1935

but have given little information<sup>1</sup> as to the "degree of adequacy" If the average diet is on the borderline as to adequacy of vitamin A it would seem advisable to supplement it with preparations containing the vitamin The addition of such products would be necessary especially for those infants who fail to take the whole amount of their prescribed diet If, on the other hand,

TABLE 3—Incidence and Severity of Infections According to Age During Administration of Low and of High Vitamin Diet

(Average period of observation, 6.8 months)

Age at Beginning of Study, Mo	Vitamin A Diet	Number of Infants	Total Number of Infections	Severity			Infections per Infant
				Mild	Moderate	Severe	
0-3	Low	11	21	17	2	2	1.9
	High	10	27	21	2	4	2.7
3-6	Low	26	68	46	11	7	2.6
	High	26	66	38	10	17	2.5
6-9	Low	14	44	22	12	10	3.1
	High	17	52	29	9	14	3.1

a considerable reduction in the vitamin A content of the average diet has no deleterious effect it would seem superfluous to add extra amounts of vitamin A

In order to obtain information on the margin of safety with respect to vitamin A in the average diet of infants, it was decided to follow the course of a group of infants receiving a diet which contained considerably less vitamin A than does the average diet It was also planned to observe simultaneously another group of infants receiving a diet which contained an excessive amount of vitamin A and to compare the two groups of infants as to state of nutrition and resistance to infections This study was carried out from November 1934 to June 1935 and from November 1935 to June 1936

The diet low in vitamin A consisted of a dry preparation of milk which was partly skimmed (dryco) and which, when reconstituted to its original volume, contained 1.5 per cent fat The vitamin A content of this milk was approximately 650 international units per quart of reconstituted milk,<sup>4</sup> as compared with an average of 2,775 international units in a quart of whole milk<sup>5</sup> Orange juice was given at the age of 6 weeks, cereal at 4 months and vegetables at 6 months Spinach and carrots, as well as butter and egg yolk, were excluded from the diet because of their high vitamin A content Fifteen drops of viosterol were given daily It will be noted in table 1 that infants aged 3 months received an average of approximately 500 international units of vitamin A, infants aged 6 months 750 units and those aged 12 months 1,050 units This diet contained as may be noted in table 1, about one fourth of the vitamin A content of the average diet of infants

The infants on the high vitamin A diet were given the same foods as those on the low vitamin A regimen, but their diet was rendered high in vitamin A by the addition of fifteen drops of halibut liver oil<sup>6</sup> containing 16,665 international units of vitamin A Infants aged 3 months, 6 months and 12 months given the high vitamin A diet received an average of approximately 17,165, 17,415 and 17,715 international units of vitamin A,

4 In one of our previous papers<sup>1</sup> we recorded our observations on nineteen infants who received a low vitamin A diet However because of the limited number of infants one could not draw any definite conclusions from the observations

5 Personal communication to the author from Dr George Supplee research director of the Dry Milk Company

6 Sherman H C Chemistry of Food and Nutrition New York: Macmillan Company 1937

7 Halibut liver oil combined with viosterol was supplied by Mead Johnson & Co

respectively. These infants therefore received from seventeen to thirty-four times as many units of vitamin A as the infants receiving the low vitamin A diet. As will be noted in table 1, the vitamin A content of this diet contained from four to eight times as much vitamin A as the average diet.

Fifty-one infants ranging in age from 3 weeks to 9 months were given the low vitamin A diet, and fifty-three infants of the same age group received the high vitamin A diet. The average age of the two groups at the beginning of the study, as may be noted in table 2, was comparable, the former group having an average age of 5.1 months and the latter an average age of 5.2 months. The infants received these diets for an average period of six and eight-tenths months, so that the average age at the end of the period of observation was about 12 months. The infants in the two groups were housed in the same wards, and therefore external conditions, such as exposure to infections, nursing care and hygiene, were identical. Temperatures and weights were taken daily. Whenever the temperature rose above 100 F a careful physical examination was carried out. Infections were classified as mild, moderate and severe, depending on the nature and the duration of the illness. Purulent otitis media, mastoiditis and pneumonia were considered severe infections. Complete physical examinations were made at monthly intervals.

A glance at table 2 reveals that the fifty-one infants receiving small amounts of vitamin A had 133 infections during the course of the investigation, an incidence of 2.6 infections per infant. The fifty-three infants receiving large amounts of vitamin A in their diet had 144 infections, an incidence of 2.7 infections per infant. Of the infections in the group receiving the low vitamin A diet, 64 per cent were classified as mild, 22 per cent as moderate and 14 per cent as severe, whereas, of those in the group receiving the high vitamin A diet, 61 per cent were mild, 15 per cent moderate and 24 per cent severe. Thus there was no significant difference between the two groups as to the incidence and the severity of infections of the respiratory tract.

In table 3 the incidence and the severity of infections of the respiratory tract are recorded in relation to age.

TABLE 4—Incidence and Severity of Infections for Seven Months After Administration of the Special Diets Has Discontinued

Age at Beginning of Study, Mo.	Vitamin A Diet	Number of Infants	Total Number of Infections	Severity			Infections per Infant
				Mild	Moderate	Severe	
0.3	Low	11	16	10	2	4	1.5
	High	10	22	12	7	3	2.2
3.6	Low	26	19	11	4	4	0.7
	High	26	2	15	3	5	0.1
6.9	Low	14	9	5	2	2	0.6
	High	17	18	9	7	2	1.1

at which the special diets were begun. We collected these data in order to find out whether there was any difference in susceptibility to infections of the respiratory tract between the two groups of infants at the various age levels. It will be noted that, irrespective of the age at which administration of the special diets was begun, there was no significant difference as to incidence and severity of infections between the infants receiving large amounts of vitamin A and those receiving small amounts.

Both groups of infants were observed for seven months after administration of the special diets was discontinued, we wished to determine whether any differences in susceptibility to infections of the respiratory

tract would be manifested at a later age. It will be observed, however, in table 4 that there was no difference as to incidence or severity of infections between the two groups for seven months after the discontinuance of the special diets.

At this point it should be mentioned that Clausen<sup>8</sup> expressed the opinion that a diet containing adequate amounts of vitamin A in early months of life may

TABLE 5—Gain in Weight in the Two Groups

Age, Months	Average Gain per Month, Ounces	
	Low Vitamin A Diet	High Vitamin A Diet
0.3	2.8	0.0
3.6	24.9	24
6.9	1.6	1.1
9.12	9.5	0

decrease the severity of infections during the latter part of the first year and during the second year. However, according to the data in tables 3 and 4, infants who received large amounts of vitamin A during the first few months of life were no less susceptible to severe infections during the second half of the first year and during the early part of the second year than those who had not received supplements of vitamin A during their first few months of life.

A comparison of the gain in weight between the two groups of infants is recorded in table 5. It will be observed that infants receiving small amounts of vitamin A gained just as well as infants receiving large amounts of the vitamin. It may be added that there was no difference as to rate of growth in length between the two groups.

Not only was no distinction discernible in the nutritional status and the resistance to infections of the respiratory tract of the two groups of infants, but there was no perceptible difference in the incidence of cutaneous infections, conjunctivitis and vaginitis. Since the appearance of cornified epithelial cells in the vaginal secretions is the earliest sign of vitamin A deficiency in the rat according to Evans,<sup>9</sup> we examined vaginal smears and as suggested by Blackfan and Wolbach scrapings from the conjunctiva, the mouth and the nose, of a number of the infants who received the low vitamin A diet. The results of these examinations were, however, negative.<sup>10</sup>

#### COMMENT

This investigation revealed that the health of a group of infants receiving one-fourth the amount of vitamin A present in the average diet was just as good as the health of a group of infants receiving from seventeen to thirty-four times as many units of vitamin A. The low vitamin A diet contained therefore, an amount of vitamin A which was above the minimum requirement as judged by the nutritional state of the infants and their resistance to infections. Thus it would seem that the average diet contains at least four times as many vitamin A units as the minimum requirement.

<sup>8</sup> Clausen, S. W. Nutrition and Infection. *J. A. M. A.* 101: 93 (March 9) 1935.

<sup>9</sup> Evans, H. M. *J. Biol. Chem.* 77: 651 (May) 1923.

<sup>10</sup> Since the completion of this study we have had the opportunity of observing the effect of the special diets on a pair of apparently identical female twins. The infants were admitted to the institution at 3 months of age and were given formulas containing dilutions of whole milk and 2% months of age at which time one twin was placed on the low vitamin A diet and the other on the high vitamin A diet. They have received the special diets for four months and during this time no difference between the twins has been noted as to incidence of respiratory infections, rate of growth in weight and in length and hemoglobin content of blood. Repeated examination of the urine, vaginal smears and scrapings from the mucous membrane of the nose, with a Leitz camera in the two infants did not reveal any difference in the cornified cells of the epithelial cell.

How many units of vitamin A represent the minimum requirement for infants is not known. As a result of experiments on rats, cattle, sheep and swine, Guilbert<sup>10</sup> stated that mammals require approximately 72 international units (29 micrograms) of vitamin A per kilogram of body weight to prevent the development of vitamin A deficiency. If this generalization is applied to infants, the minimum requirement of vitamin A for a 3 month old infant weighing 6 Kg. would be about 432 units for a 6 month old infant weighing 8 Kg. 576 units and for a 12 month old infant weighing 10 Kg. 720 units. Table 1 shows that these estimates are below the vitamin A content of the low vitamin A diet which we employed. Calculation of the vitamin A content of the average diet reveals that it contains from five to six times the minimum requirement as postulated by Guilbert.

One of the earliest signs of vitamin A deficiency in children and in adults, as well as in cattle, is night blindness, or poor dark adaptation. Jeans and his co-workers<sup>11</sup> reported that of the thirty-seven children from 7 to 10 years of age examined with a special photometer, seven had poor dark adaptation and were therefore suffering from vitamin A deficiency. These investigators gave 3,000 units of vitamin A to a child 11 years of age who had poor dark adaptation, and after two months the photometric tests were approximately normal. Another child 11 years of age, who had normal dark adaptation, was given 3,000 units of vitamin A for three months, during which time the photometric tests continued to be normal. For these two children, according to Jeans, 3,000 units seemed to meet the vitamin A requirements as judged by the special test for dark adaptation. Jeghers,<sup>12</sup> who studied the prevalence of night blindness among adults, concluded that 4,000 units of vitamin A daily represents the minimum requirement for adults and recommended 6,000 units daily to secure optimal effects in regard to dark adaptation. The experiences of Jeans and Jeghers with human beings are in agreement with the hypothesis of Guilbert that the requirement of vitamin A, in contradistinction to that of vitamin D, depends on body weight rather than on rate of growth. Thus adults required many more units of vitamin A than did children to protect them against night blindness. Similarly, it would seem probable that children require a greater number of vitamin A units than do infants to permit normal dark adaptation.

The difficulty of performing photometric tests for dark adaptation on infants is obvious, although a procedure for this purpose has recently been suggested by Friderichsen and Edmund.<sup>13</sup> Their method of testing the visual acuity of infants in the dark requires a great deal of patience and judgment on the part of the examiners, and it will be of interest to see whether it can be put to practical use in other clinics. It is possible that by means of this test the minimum requirement of vitamin A for infants will be ascertained.

#### SUMMARY

In order to obtain information on the margin of safety with respect to the vitamin A content in the

10 Guilbert H. K. and Hart G. H. Minimum Vitamin A Requirement with Particular Reference to Cattle. *J. Nutrition* 10: 409 (Oct.) 1935.

11 Jean I. C. Blanchard Evelyn and Zentmire Zelma. Dark Adaptation and Vitamin A. *J. A. M. A.* 108: 451 (Feb. 6) 1937.

12 Jegher Harold. The Degree and Prevalence of Vitamin A Deficiency in Adult. *J. A. M. A.* 109: 56 (Sept. 4) 1937.

13 Friderichsen C. and Edmund Carsten. Studies of Hypovitaminosis A. A New Method for Testing the Absorption of Vitamin A from Medicament. *Am. J. Dis. Child.* 53: 89 (Jan.) 1937.

average diet of infants, fifty-one infants were given a diet which contained approximately one-fourth the vitamin A content of the average diet and fifty-three infants were given a diet which contained from four to eight times the number of vitamin A units in the average diet. These infants were observed for an average period of six and eight-tenths months, and a comparison of the nutritional status and the incidence of infection of the two groups was made. The results showed that there was no difference as to nutritional state or as to susceptibility to infection between the two groups of infants. It would seem therefore that the average diet of infants contains at least four times as many units as the minimum requirement, as judged by the nutritional state of infants and their resistance to infections.

1 West Seventy-Third Street—1749 Grand Concourse

## Clinical Notes, Suggestions and New Instruments

### A NEW TYPE WALKING IRON

HOWARD E. SNYDER, M.D., WINFIELD, KAN.

R. A. Griswold<sup>1</sup> of Louisville used a skate type walking iron in the ambulatory treatment of fractures of the lower extremity in the fracture service at Louisville City Hospital in 1934 and 1935. It proved satisfactory but was discontinued because each iron had to be made to the individual pattern.

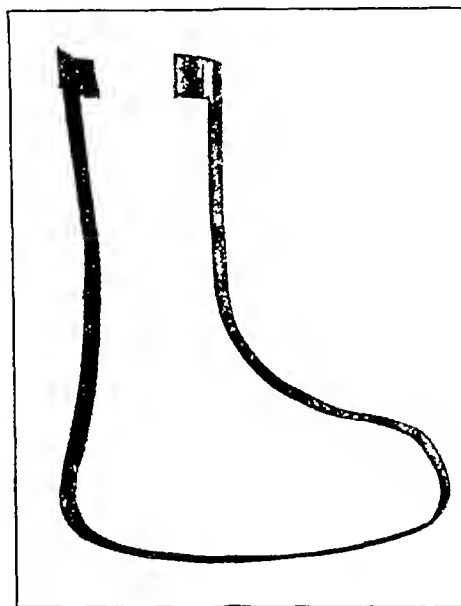


Fig. 1—The walking iron made of spring steel 1 inch wide and one eighth inch thick.

This necessarily added to the expense. It was also difficult to have the irons properly made and applied when interns or residents were responsible for the task.

In October 1936 the principle of this skate type iron was used in treating a patient with a fracture dislocation of the left ankle and a fracture of the shaft of the right tibia. From the experience gained with this case a new iron has been developed.

The iron is made of spring steel 1 inch wide and one eighth inch thick and extends down the back of the leg under the foot and back up the dorsum of the foot and front of the leg. A pattern is drawn in each case, the contour of the plaster cast

1 Griswold R. A. Personal communication to the author.

being accurately traced except on the plantar surface of the foot and dorsal surface of the toes. Here the iron is made to extend from 1 to 1½ inches below the heel and then gradually to curve upward so as just to touch the plantar surface of the cast at the toes. It then circles above the toes and again touches the plaster cast about 1 inch proximal to the web of the toes. The vertical arms extend half way up the leg. The pattern is delivered to the welder, and the iron is usually available in one or two hours.

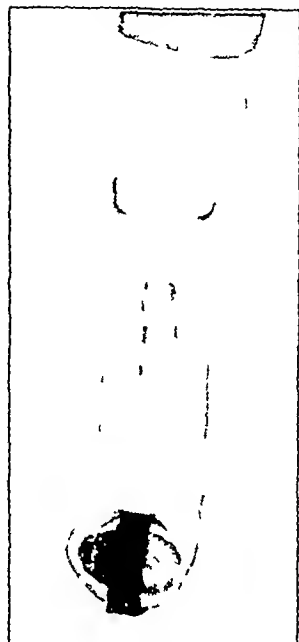


Fig. 2—Front view of cast with walking iron applied

This type iron has been used for twelve patients with fracture dislocation at the ankle, four patients with fractures of the tibia or both bones of the leg and two patients with fractures of the femur. The two patients with fracture of the femur and two of the patients with fractures of the leg bones had skeletal fixation by Steinmann pins incorporated in the unpadded plaster cast.

The advantages of this walking iron are that

1 It permits a rocking motion of the foot and leg which closely simulates the normal gait

2 The patient does not tend to twist or rotate the leg externally with each step as when the stirrup type iron is used

3 The patient is able to move faster and with more comfort

4 All the plaster on the foot is protected by the iron and hence does not break or wear out with walking

The disadvantages are that

1 The iron must be made after an individual pattern

2 The expense is increased

3 There may be some delay in applying the iron

However, the iron can be made by almost any welding or blacksmith shop and in a short time. It has been my custom to wait from twelve to twenty-four hours after applying the cast to bind on the walking iron, to avoid denting the soft plaster in applying the iron.

A walking iron should be used only on unpadded plaster casts. No one should attempt to apply it unless he is thoroughly familiar with the technique of application and with the inherent dangers of the unpadded plaster cast. This subject has been well covered by Boehler<sup>2</sup> and by Griswold.<sup>3</sup>



Fig. 3—Lateral view showing a protective leather boot which laces over the dorsum of the foot and also behind the heel. Note the curve of the iron from heel to toe.

## GONORRHEAL WOUND INFECTION FOLLOWING SIMPLE APPENDECTOMY

S. J. SULLIVAN, M.D., CHICAGO

Because of renewed general interest in venereal infections and the exceptional rarity of reported venereal wound infection, I am offering this report. An examination of the literature does not reveal a single case of a pure gonorrheal infection of an abdominal incision. Many cases of skin manifestations of gonorrhea have been reported, but living gonococci in the fatty tissues are undoubtedly rare.

### REPORT OF CASE

A married woman, aged 44, the mother of three grown children, was seen early in the morning of Sept. 15, 1937, with all the typical symptoms and signs of an acute appendicitis. She was hospitalized at once and a count of 20,700 white blood cells of which 97 per cent were polymorphonuclears, was obtained. Immediate operation was agreed on and the patient was prepared. Owing to the typical history and physical signs of acute appendicitis and a negative bimanual vaginal examination a right rectus incision was made. When the peritoneum was opened about a drachm (4 cc.) of grayish serous fluid escaped. The appendix was brought into the wound and substantiated the preoperative diagnosis. It was removed with ease, and the stump was inverted. The laboratory reported an acute suppurative appendicitis.

Exploration of the abdominal cavity revealed light adhesions in the region of the gallbladder. These were freed blindly. The uterus was normal and the tubes were only slightly inflamed and not enlarged. Neither was stripped down for pus. The ileum, however, was examined carefully for 8 or 10 feet and presented many small petechial hemorrhagic areas the size of a pinhead. There were none of these on the appendix. This unusual finding prompted me to take a culture on blood agar medium. The wound was then closed in layers and without drainage. Saline solution was given subcutaneously throughout the operation.

Because of the hemorrhagic ileum and the possibility of a hemolytic streptococcus infection, an order was given for 2 cc. of protosil<sup>1</sup> to be administered at once when the patient left the operating room, to be repeated in eight hours. However, the culture taken at operation later proved to be negative.

For the next three days the patient was quite uncomfortable with nausea, vomiting and generalized pain in the abdomen, and it was necessary to use the Levine apparatus, intravenous dextrose and several doses of narcotics. During this time, however, the white count fell from 20,700 before operation to 11,250 on the following day, 10,500 on the second and 9,500 on the third postoperative day.

The wound was examined on the fifth day but did not appear to be healing properly, although there was no discharge on the dressing. On the seventh day the patient was feeling very well and had an excellent appetite eating a general selective diet. The sutures were then removed, and before butterfly adhesive strips were applied the wound started to open and discharge a clear grayish serous fluid. A smear was made of this fluid and was reported to be gram negative intracellular diplococci with the outline of gonococci.

The following day a culture was taken on aseptic medium; it showed no growth but four more direct smears all revealed gram negative diplococci. On the ninth day another culture on aseptic medium showed an abundant growth of definite gonococci which had lived and grown in the fatty tissues between the skin and the anterior rectus muscle fascia. The wound was left tightly strapped with adhesive strips and the patient left the hospital on the fourteenth day. On the eighteenth day the adhesive strips were removed. The wound had healed perfectly. The patient was up and about the house. Antigonorrheal treatment is now in progress.

When the patient left the hospital a true history revealed that the patient's husband had been exposed to a venereal infection.

<sup>2</sup> Boehler, Lorenz. *The Treatment of Fractures*, ed. by English translation by Ernest W. Hey. Grove, Baltimore. Williams, Wood & Co. 1930, p. 6.  
<sup>3</sup> Griswold, R. A. *Unpadded Plaster Cast for Lower Extremity*. *Am. J. Surg.* 32: 247-257 (May) 1936.

<sup>1</sup> Real before the staff of the Jackson Park Hospital.  
<sup>1</sup> It is into it the diethyl salt of 4-sulfamoyl-phenyl 2-azo-7-amino-1-hydroxy-naphthalene-3,6-disulfonic acid.

three days before she had intercourse with him, and on the day she entered the hospital he noticed that a discharge developed which proved to be gonorrhea. This was seven days after his exposure. Both the patient and her husband stated that there had been no previous venereal involvement, and serologic reactions were negative.

It is interesting to note the rapid spread of a gonococcal infection from the vagina to the peritoneum in four days also to note petechial hemorrhagic areas produced undoubtedly by gonococci.

2630 East Seventy-Fifth Street

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING MINUTES AND APPRECIATION  
H A CARTER Secretary

### ABSTRACT OF MINUTES, THIRTEENTH ANNUAL MEETING, COUNCIL ON PHYSICAL THERAPY, JAN 14-15, 1938

The Council on Physical Therapy held its annual meeting Jan 14 and 15 1938, at the headquarters of the American Medical Association in Chicago. Members who were present included Drs J S Coulter, A U Desjardins, H T Karsner, F H Krusen, H E Mock, F R Ober, Ralph Pemberton, H B Williams, Olin West, Morris Fishbein and Mr Carter. Drs W W Coblentz, F D Dickson and W E Garrey were unable to attend the meeting.

Dr Mock was reelected chairman and Dr W E Garrey vice chairman. During the past year Dr George C Andrews resigned because he was obliged to curtail his activities. Since the annual meeting the Board of Trustees has appointed Dr Anthony C Cipollaro to fill the place made vacant by Dr Andrews' resignation.

#### COMMITTEE ON RESEARCH

Five individuals in the course of the year who presented problems of merit, were awarded grants in aid of research. A number of articles were published in this period by past recipients of similar grants.

In reviewing the status of ultraviolet therapy, the Council recommended careful study to establish the exact role ultraviolet radiation plays in antirachitic activity and bactericidal action. The problem of comparing the antirachitic effect of ultraviolet radiation with that produced by drugs and fortified foods of known vitamin D unitage (or potency) was given consideration.

#### AUDIOMETERS AND HEARING AIDS

One accomplishment of the Council in the course of the past year was reported by the chairman of the Consultants on Audiometers and Hearing Aids<sup>1</sup> of the Council on Physical Therapy. Tentative Minimum Requirements for Acceptable Audiometers have been established adopted and published. The hope was expressed that a definite advance will occur in the fitting of hearing aids by utilizing the auditory chart readings. A report was made on a joint meeting of the Consultants on Audiometers and Hearing Aids and representatives of leading manufacturers of audiometers and hearing aid equipment. At this meeting many problems were ironed out and the cooperation led to the establishment of minimum requirements for acceptable audiometers. In reaching this solution, the American Standards Association cooperated. Representatives of the Council were sent to the Bureau of Standards in an effort to call forcibly to the attention of those interested in sound the urgent necessity for adopting an artificial ear for standardization of both audiometers and hearing aids. The consultants expressed the hope that in the future hearing aids may be

prescribed as accurately for individual hearing defects as eye glasses are now prescribed for the eye defects. It was pointed out, however, that this achievement is still far from being realized.

#### SURVEY OF LITERATURE

The Council voted that a plan be developed for presenting an annual survey of the literature on physical therapeutic subjects. This would entail abstracting current literature, limiting it to English publications.

#### ARTIFICIAL LIMBS

The Council voted to include artificial limbs in its list of devices eligible for consideration. An attempt will be made to establish standards in this field. A meeting is contemplated for the representatives of manufacturers of artificial limbs and consultants appointed by the Council. It was suggested that this meeting might well be conducted much like the joint meeting between the representatives of manufacturers of audiometers and hearing aids and the Consultants on Otology (cooperating with the Council).

#### ROENTGEN-RAY APPARATUS

Consideration of roentgen-ray apparatus was discussed at the meeting. The Council voted that a survey be made among groups interested in this field to determine a suitable approach and procedure for investigating such apparatus.

#### LOW VOLTAGE MACHINES

It was voted that the Council proceed with an investigation of low voltage machines, basing its decision on the contents of the adopted article "The Interrupted Low Frequency and Constant Electric Current in Medicine."

#### HIGH FREQUENCY ELECTRIC CURRENT

A method is being sought for testing the efficiency of short wave diathermy machines to take the place of the surgical procedure now employed, i.e., insertion of thermocouples into the living human thigh to measure the temperature rise. Several processes were suggested for example, the calorimeter, the photoelectric wattmeter and variations of these two. However, objections were raised against them and it was decided to investigate the problem further and attempt to devise a substitute method. It was pointed out that animals cannot serve as suitable test subjects for the thermocouple experiments because dosage depends on the expressed tolerance of the patient. At present there is no objective way of determining dosage with short wave units.

After careful consideration the Council voted to reaffirm its previous stand with regard to fever therapy—that manufacturers of short wave diathermy equipment wishing to promote their units for hyperpyrexia are expected to submit for consideration and acceptance the accessory equipment employed for maintaining fever temperature.

#### RADIO COMMUNICATION

Interference with radio communications by short wave diathermy units came up for consideration. The Council is of the opinion that restrictions of diathermy equipment to certain selected wavelengths would involve a serious handicap to research and practice in the therapeutic field. The Council believed that, if certain wavelengths were reserved for medical purposes only, the privilege of screening and filtering their installations should also be given to users of short wave equipment not on the reserved frequencies. The entire field of short wave diathermy has not been completely explored and it would be a serious drawback to restrict physicians to selected and specific wavelengths.

#### PUBLICATIONS

Since the supply of the second edition of the Handbook of Physical Therapy (5000 copies) is exhausted the Council voted to go forward with the revision of the entire book and have a third edition ready for distribution by June if possible. The Council also voted to revise the booklet Apparatus Accepted by the Council on Physical Therapy. This booklet will be ready shortly.

<sup>1</sup> Drs George M Coates, Lee W Dean, E P Fowler, Austin A Hayden, Isaac H Jones, Douglas Macfarlan, Horace Newhart, Burt R Shurly and William P Wherry.



## EDUCATIONAL ACTIVITIES

One of the most important educational features of the Council on Physical Therapy is the publication from time to time of reports on apparatus. However, there was a feeling among the members that the Council has identified itself too prominently with the consideration of apparatus and has placed too little emphasis on the practice of physical therapy not associated with machines and appliances. The time has come, in the opinion of the Council, to stress more and more the value of simple physical measures used in conjunction with medicine and surgery. It was the members' opinion that a long range policy might well be formulated and information of value made available to schools of medicine and the practicing physician. Although many universities have established physical therapy departments and are offering courses in physical therapeutics to the undergraduate students, it was felt that many more universities might well follow the same course. One of the best ways to establish a course in physical therapy in a medical curriculum is to have one physician placed in charge of the department and make him responsible for the instruction in the medical school. Some schools have selected young physicians from their ranks and sent them away for special training. These men returned later and were put in charge of developing physical therapy in their particular schools and connected hospitals.

The practicing profession is best reached through exhibits, films, publications, and lectures given by specialists in physical therapy. Just now two new films are being prepared, "Occupational Therapy" and "Aids in Muscle Training," for loan to the medical profession. The Council recommended publication of a number of reports dealing with definite results achieved by means of physical therapy, also preparation of articles to be published in magazines appealing to the layman. An exhibit was suggested for the American Medical Association meeting in San Francisco next June which will indicate, in a graphic way, to the medical profession, hospital directors and deans of medical schools what is being done in physical therapy.

The Consultants on Education<sup>2</sup> have been instrumental in promoting sound physical therapy in their respective communities by (1) arranging programs for state, county and other medical meetings, (2) holding clinics on various applications of physical therapy and (3) advising on educational matters, both graduate and undergraduate.

COMMITTEE ON STANDARDIZATION OF INSTRUMENTS  
AND DRUGS

The Committee on Standardization of Instruments and Drugs<sup>3</sup> of the American Medical Association was extended a vote of thanks for its splendid work in furthering the Council's interests.

## AN APPRECIATION

The Council on Physical Therapy is very grateful to the following consultants who have given their time and effort freely toward furthering the work of the Council both in the investigation of apparatus and in advising on other problems.

Drs. Fred L. Adair, Francis Heed, Adler, M. Herbert Barker, William Bierman, Simon Benson, Walter Boothby, Joseph Brennemann, C. C. Bunch, George M. Coates, L. F. Curtiss, Alex. Day, L. W. Dean, Geza de Takats, F. H. Ewerhardt, Bernard Fantus, Samuel Feinberg, George K. Fenn, E. P. Fowler, Jonas Friedenwald, Sanford Gifford, Harry Goldblatt, F. B. Gordon, Henry Hartig, Austin A. Hayden, Allan Hemingway, J. S. Hibben, Isaac H. Jones, Louis Katz, Disraeli Kobak, A. J. Kotkis, Richard Kovacs, Henry Laurens, Franklin P. Lowry, Douglas Macfarlan, George Miller, MacKee, John MacNie, Albert Miller, C. O. Molander, J. L. Myers, Tell Nelson, Horace Newhart, E. A. Oliver, S. L. Osborne, George Pfahler, Scott Reger, William Schmidt, B. R. Shurly, E. M. Smith, Jr., K. W. Stenstrom, Ivan B. Taylor, Clifford B. Walker, Grant E. Ward, Ralph Waters, Francis Carter, Wood and William P. Wherry.

<sup>2</sup> Drs. Richard B. Dillehunt, Bernard Fantus, A. J. Kotkis, Richard Kovacs, Franklin P. Lowry and William Schmidt.  
<sup>3</sup> Drs. Sanford Gifford (chairman), Francis Heed, Adler, Jonas Friedenwald, John MacNie and Clifford Walker.

## Council on Pharmacy and Chemistry

## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS FORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

## STAPHYLOCOCCUS TOXOID (See New and Nonofficial Remedies, 1937, p. 405)

Parke, Davis & Co., Detroit

*Staphylococcus Toxoid P. D. & Co.*—A detoxified staphylococcus toxin prepared by treatment of the toxin with a 0.3 per cent formaldehyde solution at 37° C. The detoxification procedure is carried to such a degree that the first strength product will stimulate the production of 2½ international units per cubic centimeter of staphylococcus antitoxin in the blood of rabbits treated according to the method approved by the National Institute of Health. The second strength staphylococcus toxoid will stimulate the production of 5 international units per cubic centimeter of staphylococcus antitoxin in the blood of rabbits treated in the same way. The material is preserved with 0.01 per cent of merthiolate (sodium ethylmercuri thiosalicylate) and the usual sterility tests required by the National Institute of Health are made. Staphylococcus toxoid is tested for denaturation and lethal innocuity according to methods outlined by the National Institute of Health. Each of the two strengths is marketed in 5 cc rubber diaphragm stoppered bottles.

*Dosage*—The initial dose should range from 0.1 to 0.2 cc (preferably the smaller dose) of the first strength product. Subsequent doses should be increased very gradually at intervals of from three to seven days depending on the local reaction and systemic response of the patient. After treatment has been increased to 1 cc of the first strength the second strength product may be used, starting with a 0.1 to 0.2 cc dose. Injections are made subcutaneously.

## DILAUDID HYDROCHLORIDE (See New and Nonofficial Remedies, 1937, p. 305)

The following dosage forms have been accepted:

*Hypodermic Tablets Dilaudid Hydrochloride* 1 mg (1/64 grain)  
*Hypodermic Tablets Dilaudid Hydrochloride* 1.25 mg (1/8 grain)

## VIOSTEROL IN OIL (See New and Nonofficial Remedies, 1937, p. 473)

I. V. C. Viosterol (A. R. P. I. Process) in Oil—A brand of viosterol in oil—N. N. R.

Manufactured by the American Research Products Inc., a subsidiary of General Mills Inc., Minneapolis (International Vitamin Corporation Inc., New York distributor). U. S. patent applied for. U. S. trademark 314,818.

I. V. C. Viosterol (A. R. P. I. Process) in oil is prepared by the activation of purified ergosterol by low velocity electrons. The activated ergosterol is refined and dissolved in vegetable oil. The final product when assayed according to the U. S. P. method has not less than the vitamin D potency of viosterol in oil—N. N. R.

## Council on Foods

THE COUNCIL ON FOODS HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT

FRANKLIN C. BING, Secretary

VEGETIZED MACARONI NOT ELIGIBLE  
FOR LIST OF ACCEPTED FOODS

Vegetized Macaroni made from a mixture of flour water and powdered vegetables was submitted by the Golden Gate Macaroni Company, Incorporated, San Francisco, for consideration by the Council on Foods. The firm was advised that it would be necessary to provide information relative to the preparation and composition of the dried vegetables used in the product, their freedom from spray residues, and so on before consideration could proceed. The company expressed its willingness to comply with this requirement of the Council. Later the firm informed the Council that it would be impossible to provide the desired information because the Burbank Corporation which produced the powdered vegetables, was unwilling to disclose any facts regarding the preparation of its product. The Council is of the opinion that the public deserves to know the ingredients of the foods it purchases. There are no valid arguments justifying secrecy about the composition of vegetable Macaroni is being listed among the food not eligible for acceptance.

# MEDICAL LICENSURE STATISTICS FOR 1937

ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

For the thirty-sixth consecutive year the Council on Medical Education and Hospitals presents statistics of medical licensure. The report covers the year 1937 and deals with statistics regarding (a) medical licensing boards of the United States, the District of Columbia, the territories and the possessions of the United States, (b) boards of examiners in the basic sciences and (c) the National Board of Medical Examiners.

Official reports have been contributed by the medical licensing boards of all states, the District of Columbia, Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands, the homeopathic boards of Arkansas, Connecticut, Delaware, Louisiana and Maryland, the eclectic examining board in Arkansas, the twelve basic science boards in operation (Arizona, Arkansas, Colorado, Connecticut, District of Columbia, Iowa, Minnesota, Nebraska, Oklahoma, Oregon, Washington and Wisconsin) and the National Board of Medical Examiners. The homeopathic boards of Arkansas and Louisiana did not license any one during the year. Likewise no physicians were licensed in the Canal Zone.

The cooperation of the officers of the boards in supplying complete reports has made possible this annual compilation.

Reports of all examinations and those licensed by endorsement of credentials are carefully compared with the lists of graduates furnished by medical school officials so that errors in names of candidates, the medical school or the years of graduation are promptly corrected. In the occasional instance in which the applicant, according to the records, has not graduated or there is a record of irregularity, the state board is promptly notified. Credentials of physicians coming from abroad are verified by direct correspondence with the foreign medical school. The statements regarding the medical education and licensure therefore of all physicians are accurate.

The data were also entered in the biographic file of physicians and others maintained by the Directory Department of the American Medical Association, thus serving a dual purpose. About thirty licensing boards obtain from the American Medical Association verification of biographic data and other claims before granting a license or permission to take the licensing examination. This service is available to all licensing boards.

The tables referring to medical licensing board results include figures regarding the number of candidates for medical licensure in 1937, the number licensed and the number added to the profession.

## LICENSEES

The first table contains figures on the number of licenses issued in the various states, territories and possessions during the year. There were 9,793 licenses issued, 6,615 on the basis of examination and 3,178 by endorsement of credentials. In several states (table 12) the internship is a requisite for practice but a physician is permitted to take the examination and if successful his license is withheld until completion of his internship. Licenses are also withheld for lack of citizenship or

minor technicalities. The figures therefore, for those licensed after examination include many who were examined in 1936 and even a few in previous years. New York issued the largest number of licenses, 1,655, California issued 616, Illinois 607 and Pennsylvania 597. A comparison with similar figures for 1935 and 1936 indicates marked increases in these states as well as many others. The states just named are the only ones

TABLE 1—*Licentates—1937*

	Licensed on Basis of		
	Examination	Reciprocity and Endorsement	Total
Alabama	26	53	79
Arizona	14	40	54
Arkansas	45	23	68
California	348	268	616
Colorado	76	42	118
Connecticut	72	74	146
Delaware	14	7	21
District of Columbia	41	46	87
Florida	164		164
Georgia	83	38	121
Idaho	21	29	50
Illinois	488	119	607
Indiana	120	57	177
Iowa	99	28	127
Kansas	82	23	105
Kentucky	81	48	129
Louisiana	144	23	167
Maine	38	15	53
Maryland	211	46	257
Massachusetts	401	57	458
Michigan	276	188	464
Minnesota	219	25	244
Mississippi	18	25	43
Missouri	180	86	266
Montana	4	25	29
Nebraska	79	17	96
Nevada	5	12	17
New Hampshire	17	41	58
New Jersey	250	140	390
New Mexico	2	39	41
New York	1,069	586	1,655
North Carolina	82	63	145
North Dakota	13	9	22
Ohio	330	140	470
Oklahoma	63	31	94
Oregon	58	22	80
Pennsylvania	527	70	597
Rhode Island	30	13	43
South Carolina	46	21	67
South Dakota	17	4	21
Tennessee	109	28	137
Texas	183	243	426
Utah	19	27	46
Vermont	25	20	45
Virginia	148	45	193
Washington	56	66	122
West Virginia	60	54	114
Wisconsin	118	59	177
Wyoming	2	26	28
U. S. territories and possessions	40	21	61
Totals	6,615	3,178	9,793
Totals for 1936	6,271	2,747	9,018
Totals for 1935	5,717	2,103	7,820

Alaska Hawaii Puerto Rico Virgin Islands

which registered more than 500. Five states licensed between 300 and 500, four between 200 and 300, and fourteen between 100 and 200. Twenty-one states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Virgin Islands, licensed less than 100. Candidates were licensed after examination in every state, the lowest being two in New Mexico and Wyoming. Alaska and Virgin Islands licensed none by examination. Florida grants licenses only on the basis of examination. Massachusetts and Rhode Island have no reciprocity privileges but endorse diplomates of the

(CONTINUED ON PAGE 1348)

Marginal Number	SCHOOL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota
	ARKANSAS																						
1	University of Arkansas School of Medicine		1	0	4	0	5	1			3	1	1	0				1	0				
	CALIFORNIA																						
2	College of Medical Evangelists		1	0		4	3	2		0	2		1	0	1	0	2	0					
3	Stanford University School of Medicine				4	3	3														1	0	1
4	University of California Medical School				4	7	0					1	0										
5	University of Southern California Sch of Med				4	4	0																
	COLORADO																						
6	University of Colorado School of Medicine		1	0		1	0	4	1	0		1	0							1	0		
	CONNECTICUT																						
7	Yale University School of Medicine				2	0		4	0	2	0	1	0	0	1						1	0	1
	DISTRICT OF COLUMBIA																						
8	George Washington University School of Med	1	0		3	0		1	0		1	0	1	0	2	0		1	0		2	0	4
9	Georgetown University School of Medicine				2	0	1	0	3	2		9	0	2					2	0	2	0	4
10	Howard University College of Medicine								3	0				2	0			1	0		1	2	
	GEORGIA																						
11	Emory University School of Medicine	2	0							2	4	3	0					1	0		0	1	
12	University of Georgia School of Medicine									1	2	0	3	2	0								
	ILLINOIS																						
13	Loyola University School of Medicine				6	0				3	3		7	0	4	0		1	0				
14	Northwestern University Medical School		2	0	1	1	0	3	0		1	0	1	0	1	0	6	0	3	0	2	0	2
15	University of Chicago Rush Medical College	3	0	1	0	1	9	3	2	0	1	0	7	0	1	0	5	0	6	0	3	0	2
16	University of Chicago The School of Medicine of the Division of the Biological Sciences				6	0				2	0		1	0	9	0	1	0		1	0		
17	University of Illinois College of Medicine	1	0	0	1	4	0	1	0	1	0	9	3	1	0	1	2	4	0	1	0		
	INDIANA																						
18	Indiana University School of Medicine				2	0									1	0	2	0			4	0	
	IOWA																						
19	State University of Iowa College of Medicine				4	0										7	9	0			2	0	
	KANSAS																						
20	University of Kansas School of Medicine				1	0			1	0						6	8	0			1	0	
	KENTUCKY																						
21	University of Louisville School of Medicine									3	0					1	0	6	9	1			
	LOUISIANA																						
22	Louisiana State University Medical Center				1	0				3	0		1	0				6	0		1	0	
23	Tulane University of Louisiana Sch of Med	4	0	1	0	1	0		2	0		1	0	1	4	1		9	0				
	MARYLAND																						
24	Johns Hopkins University School of Medicine			1	0	3	0		2	0		2	0		1	0				4	0	1	0
25	University of Maryland School of Medicine and College of Physicians and Surgeons							3	0	1	0	1	0	1	1					9	0	0	1
	MASSACHUSETTS																						
26	Boston University School of Medicine							2	1				1	0	1	0		1	0		0	0	1
27	Harvard University Medical School	1	0		1	0		2	0	0	1		1	0	1	0	2	0	1	0	1	0	
28	Tufts College Medical School				0	1		1	2	3								1	6	0			
	MICHIGAN																						
29	University of Michigan Medical School				5	0	1	0		1	0	1	1		2	0				2	0	4	0
30	Wayne University College of Medicine				2	1									1	0							
	MINNESOTA																						
31	University of Minnesota Medical School				1	0				3	0		3	0	1	0		1	0		1	0	4
	MISSOURI																						
32	St Louis University School of Medicine				4	0		4	1		2	1		2	0			2	0		0	1	1
33	Washington University School of Medicine	4	0		6	0	2	0		3	1									1	0		
	NEBRASKA																						
34	Creighton University School of Medicine		1	1	1	2	2		0	2			2	0	1	0	4	0	3	0			
35	University of Nebraska College of Medicine				4	0										1	0						
	NEW YORK																						
36	Albany Medical College																						
37	Columbia University Coll of Phys and Surgs							2	2		1	2								2	0	3	0
38	Cornell University Medical College	1	0		3	0		1	0		1	0	1	0		1	0			1	0	1	0
39	Long Island College of Medicine							2	0		2	1											
40	New York Medical College and Flower Hospital							1	0		1	0								1	0	1	0
41	New York University College of Medicine	1	0					2	0		4	1	1	0		1	0		1	0			
42	Syracuse University College of Medicine									1	0	1	0		1	0							
43	University of Buffalo School of Medicine				1	0																	
44	University of Rochester School of Medicine				2	0		1	0				1	0									
	NORTH CAROLINA																						
45	Duke University School of Medicine				1	0				2	0										1	0	
	OHIO																						
46	Ohio State University College of Medicine				1	0			1	0		1	2										
47	University of Cincinnati College of Medicine				1	0				4	1										2	0	
48	Western Reserve University School of Medicine	1	0							1	0												
	OKLAHOMA																						
49	University of Oklahoma School of Medicine		1	0		6	0	1	0								1	0					
	OREGON																						
50	University of Oregon Medical School				3	0							2	0	2	0				2	0		
	PENNSYLVANIA																						
51	Hahnemann Medical Coll and Hosp of Phila							7	0	4	0		1	1						1	0	1	0
52	Jefferson Medical College of Philadelphia							5	1	2	0		4	2						2	0	3	0
53	Temple University School of Medicine							1	0	1	1		2	0						1	0	1	0
54	University of Pennsylvania School of Medicine	2	0		3	0		1	0	1	0	3	0	4	1		1	0		2	0	1	0
55	University of Pittsburgh School of Medicine												2	1									
56	Woman's Medical College of Pennsylvania				1	0				1	0			1	0					2	0	1	0
	SOUTH CAROLINA																						
57	Medical College of the State of South Carolina																						
	TENNESSEE																						
58	McHarr Medical College									1	0			2	0								
59	University of Tennessee College of Medicine	1	0		0	1														1	0		
60	Vanderbilt University School of Medicine																						

Hawaii Puerto Rico

Marginal Number

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
SCHOOL	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan
61 Baylor University College of Medicine		1	0		1	0		1	0						2	0	1	0	3	0	
62 University of Texas School of Medicine					1	0											1	0			1
VERMONT																					
63 University of Vermont College of Medicine							5	0												6	0
VIRGINIA																					
64 Medical College of Virginia						2	1		2	0	1	0							2	0	1
65 University of Virginia Department of Medicine									2	0									1	0	3
WISCONSIN																					
66 Marquette University School of Medicine				0	1		1	1					1	0				1	0		1
67 University of Wisconsin Medical School		1	0	4	0				1	0			4	0				1	0		1
CANADA																					
68 Dalhousie University Faculty of Medicine				1	0													1	0		1
69 Laval University Faculty of Medicine																		1	0		
70 McGill University Faculty of Medicine				6	0		4	0	1	0	2	0		1	0			3	0	0	6
71 Queen's University Faculty of Medicine							1	0		1											1
72 University of Alberta Faculty of Medicine				1	0						1	0		1	0						1
73 University of Manitoba Faculty of Medicine				1	0									1	0						1
74 University of Montreal Faculty of Medicine																		1	0	1	0
75 University of Toronto Faculty of Medicine				2	0		1	0		0	1			3	0	1	0		1	0	0
76 University of Western Ontario Medical School				1	0					1	0							1	0		1
77 Foreign Medical Faculties	2	1		10	5	4	1	6	5	3	0		33	2	3	2		4	2	7	1
78 Extinct Medical Schools	1	0		2	0					2	2									1	0
79 Unapproved Schools and Undergraduates			2	0	1	0				2	0		82	3						114	1
80 Totals	27	16	48	369	79	101	16	41	202	83	20	448	123	88	82	82	114	60	236	620	917
81 Totals—Examined—Passed	26	14	48	349	76	80	14	41	164	83	20	455	123	88	82	81	113	58	209	591	811
82 Totals—Examined—Failed	1	2	0	20	3	21	2	0	38	0	0	93	0	0	0	1	1	2	27	129	106
83 Percentage Failed	3.7	12.5	0.0	5.4	3.8	20.8	12.5	0.0	18.8	0.0	0.0	10	16	0.0	0.0	1.2	0.6	3.3	11.4	21.1	11.6
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

P = Passed F = Failed

(CONTINUED FROM PAGE 1345)

National Board of Medical Examiners The total number licensed, 9,793, was 775 more than in 1936 and 1,883 more than in 1935 Licensed on the basis of examination, the figure increased 344 over 1936 and those licensed without examination increased 431 This figure, however, does not represent 9,793 individuals, since several have been licensed in more than one state during the year Nor does it represent additions to the medical profession at large, since the majority of the 3,178 licensed by endorsement, with the exception of those licensed in New York on the basis of foreign credentials, and many of the National Board diplomates have migrated from other states Table 7 shows how many of those licensed were never before registered and therefore represent the number added to the medical profession

## TOTAL EXAMINED

Figures referring to those examined for medical licensure by individual states throughout the year, giving the number who passed and failed in each state, are included in table 2 There were 7,320 examined, of whom 6,589 passed and 731 failed, representing graduates from the sixty-seven approved four year medical schools in the United States and nine of the medical schools of Canada, eighty-seven faculties of medicine and five licensing corporations of other countries, ten medical schools now extinct, nine unapproved institutions and several osteopathic colleges Two undergraduates were examined Osteopaths granted the privilege to practice medicine, surgery or both by the medical board are included in these statistics eliminating, for instance, those osteopaths in California granted privileges as physicians and surgeons by the osteopathic board There were 5,707 graduates of approved medical schools in the United States examined, of whom 37 per cent failed, 129 graduates of approved Canadian

schools, 78 per cent of whom failed, 919 graduates of schools outside the United States and Canada, principally in Europe, with 308 per cent failures, 14 who graduated from schools now extinct with 214 per cent of failures, and 551 from unapproved and osteopathic schools and undergraduates, of whom 408 per cent failed These 551 represented 190 graduates of osteopathic schools, of whom 113 passed and 77, 405 per cent, failed, 359 graduates of unapproved schools, of whom 213 passed and 146, 407 per cent, failed and two undergraduates, both of whom failed The latter were permitted to take the examination in Mississippi by special acts of the legislature Graduates of osteopathic schools were examined in nine states—Colorado, Connecticut, Massachusetts, New Hampshire, New Jersey, Oregon, Texas, Wisconsin and Wyoming, while graduates of unapproved schools were examined in eleven states and Hawaii—Arizona, Arkansas, Florida, Illinois, Massachusetts, New Jersey, North Carolina, Ohio, Pennsylvania, South Dakota and Virginia Of the 190 osteopaths, 71 were examined in New Jersey, 62 in Massachusetts and 26 in Texas Of those graduates of other than recognized schools, Massachusetts examined 238, Illinois 85 and Ohio 23 Osteopaths in Colorado, Massachusetts, New Hampshire and New Jersey were examined in medicine and surgery and those in Connecticut, Oregon, Wisconsin and Wyoming in surgery only

The United States territories and possessions refer to Hawaii and Puerto Rico

The 7,320 examined do not represent individuals since a candidate might take the examination in more than one state and would be counted in each state This applies to those who pass or fail, or those who fail and later pass in one or more states, or pass in one state



	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
Missouri																												
Montana																												
Nebraska																												
Nevada																												
New Hampshire																												
New Jersey																												
New Mexico																												
New York																												
North Carolina																												
North Dakota																												
Ohio																												
Oklahoma																												
Oregon																												
Pennsylvania																												
Rhode Island																												
South Carolina																												
South Dakota																												
Tennessee																												
Texas																												
Utah																												
Vermont																												
Virginia																												
Washington																												
West Virginia																												
Wisconsin																												
Wyoming																												
U. S. Territories and Possessions																												
Totals																												
Examined—Passed																												
Examined—Failed																												
Percentage—Failed																												
No Boards Examined by																												
Marginal Number																												

Hawaii Puerto Rico

and later within the same year fail elsewhere. However if a physician fails more than once in a given state within the year he is counted in that state only once as a failure.

Three of the five homeopathic boards in existence, Connecticut, Delaware and Maryland, examined twenty-eight candidates all of whom passed. The homeopathic boards of Arkansas and Louisiana did not examine any one during the year. The one eclectic board in existence (Arkansas) examined and passed one candidate.

The largest number of graduates of any one school examined was 183 from Rush Medical College, who were examined in thirty states. There were 177 graduates of Jefferson Medical College of Philadelphia examined in nineteen states. The next highest number of graduates of any one school was the University of Illinois College of Medicine, which had 162 graduates examined by twenty states. Tufts College Medical School and Boston University School of Medicine had the highest percentage of failures in the United States 182 and 145 respectively. Graduates of Rush Medical College were examined in the most states thirty. Northwestern University Medical School graduates were examined by twenty-nine states, Harvard University Medical School by twenty-seven, the University of Pennsylvania School of Medicine by twenty-five, George Washington University School of Medicine by twenty-four, Georgetown University School of Medicine by twenty-one and the University of Illinois College of Medicine by twenty. All other schools had their graduates examined in fewer than twenty states. From those statistics it might be inferred that these schools educate more nonresidents than do other schools. Graduates of the University of Southern California School of Medicine (forty-five) were examined by two

states, one of which was California which examined forty-four. Graduates of Albany Medical College (nineteen) were also examined in two states, eighteen in New York where the school is located.

Canadian graduates took the test in twenty-three states and Puerto Rico. The greatest number, fifty-one represented McGill University Faculty of Medicine who were examined in sixteen states, twenty-four graduates of the University of Toronto Faculty of Medicine were examined also in sixteen states, while fourteen graduates of Dalhousie University Faculty of Medicine and six of the graduates of the University of Alberta Faculty of Medicine were examined in six states. The highest percentage of failures was 25 representing the University of Montreal Faculty of Medicine.

Sixteen medical schools had no failures before state licensing boards, namely the Universities of California, Southern California, Colorado, School of Medicine of the Division of the Biological Sciences, Indiana, Iowa, Kansas, Louisiana, Minnesota, Duke, Western Reserve, Oklahoma, Oregon, Baylor, Texas and Vermont.

In 1936, 6,908 were examined of whom 6,214 passed and 100 per cent failed, as compared with 7,320 examined in 1937, of whom 6,589 passed and 731 100 per cent failed. There were 412 more examined than in 1936 375 more passed and the failures increased thirty-seven. Elsewhere are given figures representing actual licentiatees and additions to the medical profession.

#### FAILURES

In table 3 are presented for each state the number granted licenses to practice medicine having a perfect record in medical license examinations, the number

(CONTINUED ON PAGE 14)

TABLE 4—*Credentials Presented by Physicians for Licensure by Reciprocity and Endorsement—1937*

[illegible]

(CONTINUED FROM PAGE 1349)

licensed after one failure and after two or more failures, these two groups being classified by indication whether the failure or failures have been in the state in which they are receiving a license or elsewhere

Of the total number licensed by examination, 6,615, 190 failed after one examination in the state in which they were licensed in 1937 and 63 elsewhere, while 99 failed more than once in the state awarding the 1937 license and forty elsewhere, leaving 6,223 licensed without ever having failed a medical licensing examination

In the computation of this table it was noted that five osteopaths were licensed in Massachusetts, of whom one failed fourteen and another ten times Of the thirty-nine graduates of unapproved schools licensed in Massachusetts two failed thirteen, four failed ten, three nine, two eight and two seven times each An osteopath was examined four times in Connecticut, another in New Hampshire failed four times Texas licensed an osteopath who failed the Delaware osteopathic examination North Carolina also licensed a graduate of an unapproved school who had five failures

Nineteen states and the District of Columbia licensed physicians who never failed a state board examination while Massachusetts licensed 77 and New York 189 who previously failed Licensure of candidates with failures occurred in twenty-nine states, but with the exception of Massachusetts and New York no state licensed more than ten

#### REGISTRATION BY RECIPROCITY AND ENDORSEMENT

Table 4 records the number of physicians granted licenses to practice medicine and surgery without examination on presentation of satisfactory credentials These individuals presented licenses from other states, Canada and foreign countries, the certificate of the National Board of Medical Examiners, one of the government services, or other credentials

Definite reciprocal agreements exist in many of the states, but some will register licentiates who present credentials which correspond to those required by their respective states at the time such licenses were issued The medical practice acts of many give the examining board the privilege of using its discretion in determining the acceptability of a candidate The reciprocity and endorsement policies of the various states are presented in table 6 In addition there is also indicated whether licenses are granted to diplomates of the National Board of Medical Examiners or to retired officers of the government services Specific requirements such as professional practice, basic science certificate and oral examination is recorded as is also the fee demanded Florida, Massachusetts and Rhode Island do not have reciprocal or endorsement arrangements with any state Reciprocal relations were canceled in Idaho in 1937 Massachusetts and Rhode Island however, will register diplomates of the National Board of Medical Examiners by endorsement Those desiring licenses in Arizona Arkansas Colorado, Connecticut District of Columbia Iowa, Michigan, Minnesota Nebraska, Oklahoma, Oregon, Washington and Wisconsin are required to obtain a certificate from the board of examiners in the basic sciences before being eligible for licensure Other requirements or exemptions are mentioned in footnotes

Referring to table 4, it will be noted that New York granted the greatest number of licenses by endorsement in 1937 (586), California was second with 268, Michigan third with 188 Texas fourth with 171 New Jersey

and Ohio each licensed 140, and 119 were registered in Illinois All other states licensed fewer than 100 The largest group representing the same type of credentials were the 559 diplomates of the National Board of Medical Examiners More than 100 physicians from Illinois, Maryland, Missouri, New York, Ohio and Tennessee, respectively, were licensed in the various states and 153 candidates from Canada and foreign countries were likewise registered, 146 of the latter being so endorsed in New York Only 171 New York licenses were endorsed during the year, while 586 candidates were licensed in New York on the basis of credentials

TABLE 3—Failures Before Medical Licensing Boards by  
Licentiates of 1937

	Number Licensed by Exam- ination Without Failures	Number Licensed After One Failure		Number Licensed After Two or More Failures	
		Failed in State Where Licensed	Else- where	Failed in State Where Licensed	Else- where
Alabama	25		1		
Arizona	10	4			
Arkansas	44		1		
California	338	5	3	1	1
Colorado	76				
Connecticut	62	4	1	3	2
Delaware	13				1
District of Columbia	41				
Florida	155	5	3	1	
Georgia	80		3		
Idaho	21				
Illinois	452	1	3		2
Indiana	119		1		
Iowa	99				
Kansas	82				
Kentucky	81				
Louisiana	143	1			
Maine	31		3		4
Maryland	208	5	1		2
Massachusetts	724	22	2	52	1
Michigan	2		3		
Minnesota	210				
Mississippi	18				
Missouri	173	4	3		
Montana	4				
Nebraska	79				
Nevada	5				
New Hampshire	16				1
New Jersey	241		2		7
New Mexico	1				1
New York	850	130	11	33	10
North Carolina	80		1		1
North Dakota	13				
Ohio	314	1	4		1
Oklahoma	63		1		1
Oregon	58				
Pennsylvania	522		4		1
Rhode Island	35	2	1	1	
South Carolina	46				
South Dakota	17				
Tennessee	197		2		
Texas	173	2	7		1
Utah	10				
Vermont	25				
Virginia	144	1	1		2
Washington	6				
West Virginia	79				1
Wisconsin	118				
Wyoming	2				
U S Terr & poss	33	3	1	3	
Totals	6,615	190	63	89	40

\* Hawaii Puerto Rico

Six physicians were licensed, one each in Arizona, New Hampshire and New York by endorsement of the credentials of the Medical Council of Canada, one physician was endorsed in New Mexico and one in New York on a license issued in Ontario and one in Vermont on Quebec credentials Licenses were issued by endorsement of European credentials in two states, New Hampshire and New York Three were so registered in New Hampshire on the basis of certificates from Germany Those in New York (144) represented the following countries Austria four, Czechoslovakia one, Dominican Republic one, France one, Germany 127, Hungary six,

(CONTINUED ON PAGE 1354)

TABLE 5—Candidates Licensed by Reciprocity and Endorsement—1937

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	Alabama	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Totals		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	1	2	3	4	5	6</																																												







had at least one physician endorsed Delaware, Idaho, Nevada, New Mexico and Alaska had only one endorsed

Included in the group at the side of the table listed as "U S territories and possessions" are Alaska, Hawaii, Puerto Rico and the Virgin Islands

A total of 3,098 physicians secured licenses by this method in 1937

Medical College 87, Georgetown University School of Medicine and the University of Nebraska College of Medicine each 82, and the State University of Iowa College of Medicine 80 Graduates of fifty-two foreign faculties of medicine and two licensing corporations of England and Scotland, forty-eight extinct medical schools, three unapproved institutions

### Endorsement Policies

changes of which this office has not been advised For an official statement write directly to the medical board

Marginal Number	Reciprocity with or Endorsement Certificates Granted by																							Requirements										Marginal Number
	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska	Puerto Rico	At the Discretion of the Board	National Board of Medical Examiners	U S Government Services	Basic Science Certificate	Internship	Professional Practice	Citizenship <sup>1</sup>	Fees, Dollars <sup>2</sup>	Miscellaneous				
1																						+	+	+	+	+	14	1st P	50		1			
2																						+	+	+	+	+	14	1st P	100		2			
3																						+	+	+	+	+	14	1st P	50 <sup>30</sup>		3			
4																						+	+	+	+	+	14	1st P	100		4			
5																						+	+	+	+	+	14	1st P	50		5			
6																						+	+	+	+	+	14	1st P	50		6			
7																						+	+	+	+	+	14	1st P	100		7			
8																						+	+	+	+	+	14	1st P	50		8			
9																						+	+	+	+	+	14	1st P	50		9			
10																						+	+	+	+	+	0	+	50		10			
11																						+	+	+	+	+	14	1st P	25		11			
12																						+	+	+	+	+	14	1st P	50		12			
13																						+	+	+	+	+	14	1st P	50		13			
14																						+	+	+	+	+	14	1st P	50		14			
15																						+	+	+	+	+	14	1st P	50		15			
16																						+	+	+	+	+	14	1st P	50		16			
17																						+	+	+	+	+	14	1st P	50		17			
18																						+	+	+	+	+	14	1st P	50		18			
19																						+	+	+	+	+	14	1st P	50		19			
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46																						+	+	+	+	+	14	1st P	50		46			
47																						+	+	+	+	+	14	1st P	50		47			
48																						+	+	+	+	+	14	1st P	50		48			
49																						+	+	+	+	+	14	1st P	50		49			

13 Applicant must have resided in the state used as basis of application for one year after date on said certificate or in lieu of residence must show proof of two years legal practice in some state or territory of the United States (Internship accepted as residence)

14 Oral examination required

15 Unless in practice in another state for five years

16 Six months of which must be just preceding application

17 Practical clinical examination required

18 Same as charged Kansas

19 Regular and Homeopathic boards

20 Canada excepted

21 Regular board

22 Fee same as applicant's state charges if more than \$30

23 Oral examination required if applicant's state requires it

24 If an applicant passes the examination in the state from which he transfers after the completion of his internship no practice is required

25 Internship accepted if served in this state

26 Internship accepted—considered equivalent to two years practice

27 Five years practice

28 Conditionally

29 A two year internship is accepted

30 License by National Board certificate at examination fee of \$15 unless holding a license from another state

In table 5 the 3,098 physicians licensed by reciprocity and endorsement and, in addition, eighty osteopaths so licensed, are recorded by school of graduation and state or territory where licensed. All of the existing medical schools in the United States and eight in Canada offering the complete medical course were represented. The largest number of graduates of any one school were from Northwestern University Medical School 101. Harvard had 93 licensed by this method, St. Louis University School of Medicine 88. Rush

and several osteopathic schools were licensed without examination.

Seventy-two osteopaths in Texas and two in New Hampshire were granted the right to practice medicine and surgery, and two and four osteopaths, respectively, permitted the privilege of practicing surgery in Wisconsin and Wyoming. There were 238 graduates of foreign medical faculties registered, 76 from extinct medical schools and 104 graduates of unapproved schools, a total of 418. Of the remainder

(2,760), 2,712 were from approved medical schools in the United States and forty-eight from the Canadian schools

#### CANDIDATES ADDED TO THE PROFESSION

Licentiates representing additions to the profession during 1937 are given in table 7. The figures represent candidates examined in 1937 and licensed, also those examined in previous years whose licenses were withheld and issued in 1937, those certified on the basis of the certificate of the National Board of Medical Examiners, government services, Canadian and foreign

TABLE 7—*Licentiates Representing Additions to the Medical Profession—1937*

	Examina- tion	Reciprocity and Endorse- ment	Total
Alabama	21	1	22
Arizona	4	1	5
Arkansas	40		40
California	307	10	317
Colorado	70	3	73
Connecticut	53	23	76
Delaware	7	1	8
District of Columbia	32	4	36
Florida	20		20
Georgia	78	2	80
Idaho	10		10
Illinois	440	10	450
Indiana	116		116
Iowa	03	2	05
Kansas	80	1	81
Kentucky	81		81
Louisiana	131		131
Maine	43	2	45
Maryland	200	8	208
Massachusetts	240	40	280
Michigan	260	10	270
Minnesota	154	5	159
Mississippi	16		16
Missouri	172	7	179
Montana	2		2
Nebraska	79	1	80
Nevada	3		3
New Hampshire	14	12	26
New Jersey	237	14	251
New Mexico	1		1
New York	1,015	272	1,287
North Carolina	77	6	83
North Dakota	7	1	8
Ohio	317	17	334
Oklahoma	60	2	62
Oregon	41		41
Pennsylvania	450	26	476
Rhode Island	19	0	19
South Carolina	42	2	44
South Dakota	3		3
Tennessee	198	3	201
Texas	181	70	251
Utah	10		10
Vermont	22	7	29
Virginia	143	1	144
Washington	39	6	45
West Virginia	34	1	35
Wisconsin	106	1	107
Wyoming		2	2
U. S. territory and possession*	19	7	26
Totals	5,802	601	6,403
Totals for 1936	5,046	628	5,674
Totals for 1935	5,098	411	5,509

\* Hawaii, Puerto Rico

credentials and miscellaneous. In the main they represent recent graduates. Altogether, 6,403 were added to the profession as contrasted with approximately 4,000, the number removed by death in 1937. These figures indicate that at least 1,500 have been added to the medical profession. It is assumed that the great majority of those licensed are in practice. It is interesting to note that, of 9,793 licenses issued throughout the year, 6,403, 65.4 per cent, are actual additions to the medical profession. The largest number added to the profession was in New York, 1,287, Pennsylvania added 476 and Illinois 464, while Montana and Wyoming added two. More than 300 were added in California and Ohio. Between 200 and 300 were added to the physician population of Maryland, Massachusetts, Michigan, New Jersey, Tennessee and Texas. Indiana,

Louisiana, Minnesota, Missouri, Virginia and Wisconsin increased their population of physicians between 100 and 200. Thirty-one states, the District of Columbia, Hawaii and Puerto Rico added less than 100. Of the number of licentiates represent-

TABLE 8—*Licentiates Representing Additions to the Medical Profession Grouped in Geographic Divisions—1937*

	Examina- tion	Reciprocity and Endorse- ment	Total
New England			
Maine	43	2	45
New Hampshire	14	12	26
Vermont	22	7	29
Massachusetts	240	40	280
Rhode Island	19	0	19
Connecticut	53	23	76
	391	98	489
Middle Atlantic			
New York	1,015	272	1,287
New Jersey	237	14	251
Pennsylvania	450	26	476
	1,702	312	2,014
East North Central			
Ohio	317	17	334
Indiana	116		116
Illinois	440	10	450
Michigan	260	10	270
Wisconsin	106	1	107
	1,248	48	1,296
West North Central			
Minnesota	104	5	109
Iowa	03	2	05
Missouri	172	7	179
North Dakota	7	1	8
South Dakota	3		3
Nebraska	79	1	80
Kansas	80	1	81
	588	17	605
South Atlantic			
Delaware	7	1	8
Maryland	200	8	208
District of Columbia	32	4	36
Virginia	143	1	144
West Virginia	34	1	35
North Carolina	77	6	83
South Carolina	42	2	44
Georgia	78	2	80
Florida	20		20
	633	20	653
East South Central			
Kentucky	81		81
Tennessee	108	3	201
Alabama	21	1	22
Mississippi	16		16
	316	4	320
West South Central			
Arkansas	40		40
Louisiana	131		131
Oklahoma	60	2	62
Texas	181	70	251
	417	72	489
Mountain			
Montana	2		2
Idaho	10		10
Wyoming		2	2
Colorado	70	3	73
New Mexico	2	1	3
Arizona	4	1	5
Utah	10		10
Nevada	3		3
	101	7	108
Pacific			
Washington	39	6	45
Oregon	41		41
California	307	10	317
	387	16	403
Territory and Possession			
Hawaii	5	7	12
Puerto Rico	14		14
	19	7	26
Totals	5,802	601	6,403
Totals for 1936	5,046	628	5,674
Totals for 1935	5,098	411	5,509

ing additions to the medical profession during 1937, 5,802 secured this privilege by examination and 601 by the endorsement of credentials. A great majority of the latter were licensed in New York and represent graduates of foreign medical schools.

licensed on the basis of their foreign credentials and diplomates of the National Board of Medical Examiners. In 1935 there were 5,098 added by means of examination and 411 by endorsement of credentials, a total of 5,509. In 1936 there were 665 more added than in 1935 and, in 1937, 229 more than in 1936 and 894 more than in 1935. No additions were made to the physician population of Alaska, but twenty-six were added in Hawaii and Puerto Rico.

each, the Pacific group of states 403, the East South Central 320 and the Mountain division 108. Fourteen were added in Puerto Rico and twelve in Hawaii.

In table 9 those representing additions to the medical profession are arranged by schools, the same as those examined are listed in table 2—existing approved medical schools in the United States and Canada, foreign faculties of medicine, schools now extinct and unapproved schools.

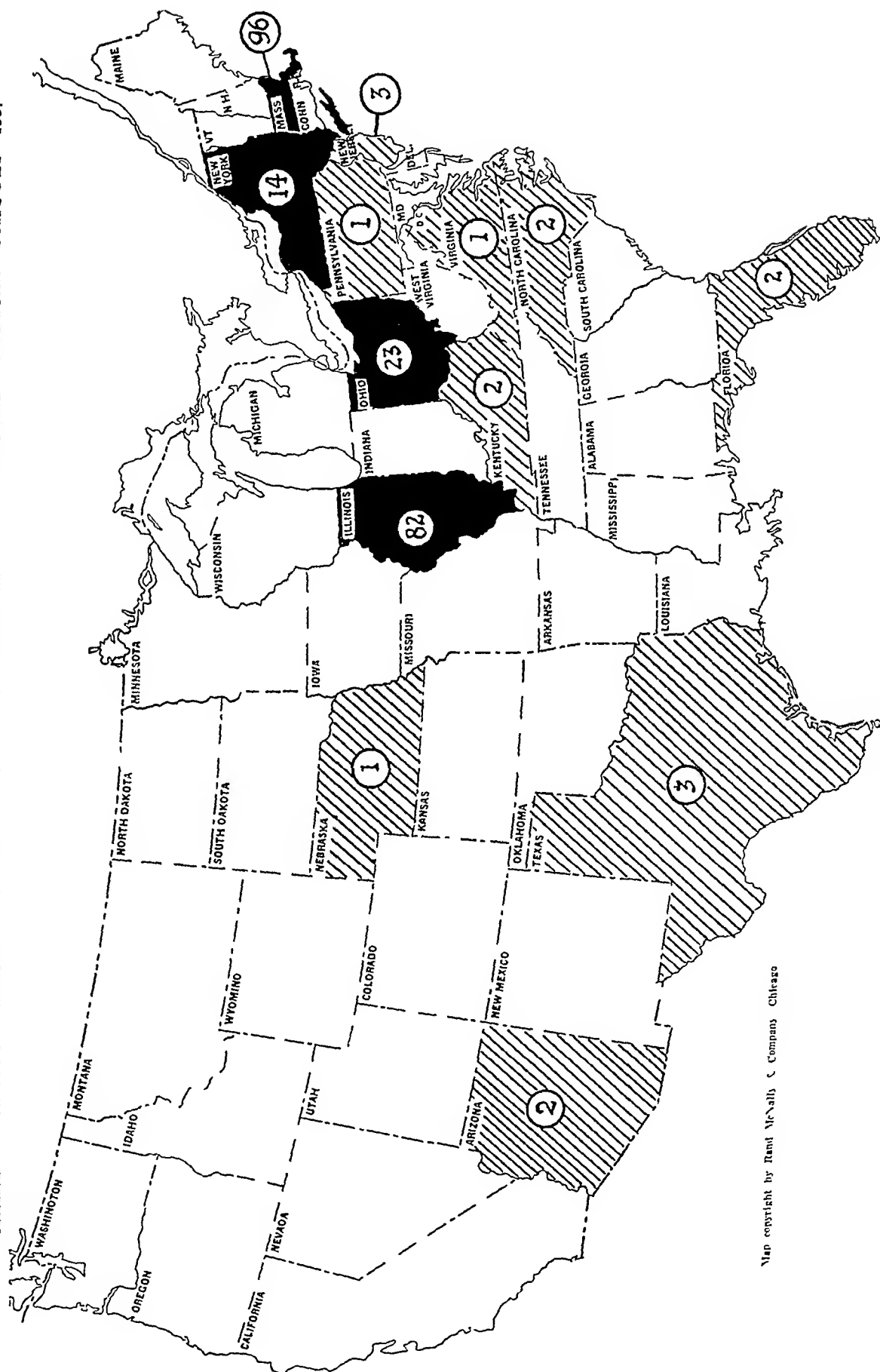
TABLE 9—Individuals Licensed Classified by Schools

SCHOOL	Examined	Reciprocity and Endorsement	Total	SCHOOL	Examined	Reciprocity and Endorsement	Total
<b>ARKANSAS</b>				<b>NEW YORK</b>			
University of Arkansas School of Medicine	51	2	53	Albany Medical College	17	7	24
<b>CALIFORNIA</b>				Columbia University College of Phys. and Surgs.	78	15	93
College of Medical Evangelists	55	12	67	Cornell University Medical College	66	18	84
Stanford University School of Medicine	46		46	Long Island College of Medicine	73	3	76
University of California Medical School	48	1	49	New York Medical College and Flower Hospital	24	22	46
University of Southern California School of Med.	44	1	45	New York University College of Medicine	119	8	127
<b>COLORADO</b>				Syracuse University College of Medicine	39	1	40
University of Colorado School of Medicine	48		48	University of Buffalo School of Medicine	67	4	71
<b>CONNECTICUT</b>				University of Rochester School of Medicine	34	4	38
Yale University School of Medicine	11	28	39	<b>NORTH CAROLINA</b>			
<b>DISTRICT OF COLUMBIA</b>				Duke University School of Medicine	23	16	39
George Washington University School of Medicine	57	1	58	<b>OHIO</b>			
Georgetown University School of Medicine	85	41	126	Ohio State University College of Medicine	94		94
Howard University College of Medicine	46	3	49	University of Cincinnati College of Medicine	70		70
<b>GEORGIA</b>				Western Reserve University School of Medicine	62		62
Emory University School of Medicine	56		56	<b>OKLAHOMA</b>			
University of Georgia School of Medicine	32		32	University of Oklahoma School of Medicine	63	1	64
<b>ILLINOIS</b>				<b>OREGON</b>			
Loyola University School of Medicine	108	5	108	University of Oregon Medical School	47	3	50
Northwestern University Medical School	137	5	142	<b>PENNSYLVANIA</b>			
University of Chicago Rush Medical College	144	1	145	Hahnemann Medical College and Hospital of Phila.	102	2	104
University of Chicago The School of Medicine of the Division of the Biological Sciences	28	2	31	Jefferson Medical College of Philadelphia	138	3	141
University of Illinois College of Medicine	158	2	160	Temple University School of Medicine	127	2	129
<b>INDIANA</b>				University of Pennsylvania School of Medicine	111	11	122
Indiana University School of Medicine	96		96	University of Pittsburgh School of Medicine	58		58
<b>IOWA</b>				Woman's Medical College of Pennsylvania	30	6	36
State University of Iowa College of Medicine	85		85	<b>SOUTH CAROLINA</b>			
<b>KANSAS</b>				Medical College of the State of South Carolina	46		46
University of Kansas School of Medicine	70	1	71	<b>TENNESSEE</b>			
<b>KENTUCKY</b>				Meharry Medical College	33		33
University of Louisville School of Medicine	81		81	University of Tennessee College of Medicine	101	1	102
<b>LOUISIANA</b>				Vanderbilt University School of Medicine	50	5	55
Louisiana State University Medical Center	37	2	39	<b>TEXAS</b>			
Tulane University of Louisiana School of Medicine	111	2	113	Baylor University College of Medicine	75	1	76
<b>MARYLAND</b>				University of Texas School of Medicine	78		78
Johns Hopkins University School of Medicine	59	9	68	<b>VERMONT</b>			
University of Maryland School of Medicine and College of Physicians and Surgeons	195		195	University of Vermont College of Medicine	32	10	42
<b>MASSACHUSETTS</b>				<b>VIRGINIA</b>			
Boston University School of Medicine	34	17	51	Medical College of Virginia	85	1	86
Harvard University Medical School	89	46	135	University of Virginia Department of Medicine	58		58
Tufts College Medical School	91	28	119	<b>WISCONSIN</b>			
<b>MICHIGAN</b>				Marquette University School of Medicine	66		66
University of Michigan Medical School	140	1	141	University of Wisconsin Medical School	44	1	45
Wayne University College of Medicine	56		56	<b>CANADA</b>			
<b>MINNESOTA</b>				Dalhousie University Faculty of Medicine	14	1	15
University of Minnesota Medical School	134	9	143	Laval University Faculty of Medicine	4	1	5
<b>MISSOURI</b>				McGill University Faculty of Medicine	36	7	43
St. Louis University School of Medicine	117	2	119	Queen's University Faculty of Medicine	11	1	12
Washington University School of Medicine	88	2	90	University of Alberta Faculty of Medicine	6		6
<b>NEBRASKA</b>				University of Manitoba Faculty of Medicine	3		3
Crofton University School of Medicine	54	1	55	University of Montreal Faculty of Medicine	7		7
University of Nebraska College of Medicine	75	1	76	University of Toronto Faculty of Medicine	15		15
				University of Western Ontario Medical School	4	2	6
				Foreign Medical Faculties	158	144	729
				Extinct Medical Schools	4		4
				Unapproved Schools	707	74	381
				<b>Totals</b>	<b>5,502</b>	<b>601</b>	<b>6,403</b>

Table 8 records the licentiates representing additions to the medical profession by nine geographic divisions in 1937, namely, the New England, Middle Atlantic, East and West North Central, South Atlantic, East and West South Central, Mountain and Pacific states as well as the Territory of Hawaii and Puerto Rico. The largest number was added to the Middle Atlantic group, 2,014; the East North Central 1,291, the South Atlantic 658; the West North Central 605; the New England and West South Central group 489.

The 6,403 physicians representing additions to the medical profession included graduates from the sixty-seven approved medical schools of the United States, nine schools in Canada, and others. The greatest number from any one school were 145 from Rush Medical College; 143 from the University of Minnesota Medical School; 142 were from Northwestern University Medical School and 141 from the University of Michigan Medical School and Jefferson Medical College of Philadelphia. Of the United States schools the Albany

CHART 1—STATES REGISTERING OTHER THAN GRADUATES OF APPROVED MEDICAL SCHOOLS—1937



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The states in black registered more than 5 such candidates those shaded 5 or less



Medical College had the fewest, twenty-four, while only three were represented from the Universities of Manitoba and Montreal. There were 729 graduates of foreign faculties of medicine and 381 from unapproved schools.

#### STATE REQUIREMENTS OF PRELIMINARY EDUCATION

The minimum requirement of preliminary education exacted by the Council on Medical Education and Hospitals since 1918 has been two years of college work. Five states, however, have not revised or

TABLE 10—State Requirements of Preliminary Training

Two Years of College		
Alabama	Maloe	Oregon
Arizona	Maryland	Pennsylvania
Arkansas	Massachusetts	Rhode Island
Colorado	Michigan	South Carolina
Delaware	Minnesota	South Dakota
District of Columbia	Mississippi	Tennessee
Florida	Montana	Texas
Georgia	Nevada	Utah
Idaho	New Hampshire	Vermont
Illinois	New Jersey	Virginia
Indiana	New Mexico	Washington
Iowa	New York	West Virginia
Kansas	North Carolina	Wisconsin
Kentucky	North Dakota	Wyoming
Louisiana	Oklahoma	
One Year of College		
California	Connecticut	
High School Graduation or Its Equivalent		
Missouri	Nebraska	Ohio

amended their statutes to conform with these prerequisites, although these states do not license as a rule other than approved graduates. Table 10 records the premedical training required in each state.

#### REQUIRED HOSPITAL INTERNSHIPS

The medical schools and licensing boards requiring or planning to require a hospital internship for the M.D. degree and state licensure, respectively, are shown in tables 11 and 12. The effective date of the requirement is shown in both tables. Thirteen schools in the

TABLE 11—Internship Required by Medical Schools

	Effective Date
University of California Medical School	1919
College of Medical Evangelists	1927
University of Southern California School of Medicine	1933
Stanford University School of Medicine	1919
Loyola University School of Medicine	1922
Northwestern University Medical School	1920
University of Illinois College of Medicine	1922
Louisiana State University Medical Center	1934
Wayne University College of Medicine	1924
University of Minnesota Medical School	1915
Duke University School of Medicine*	1922
University of Cincinnati College of Medicine	1921
Marquette University School of Medicine	1920
Canada	
University of Manitoba Faculty of Medicine	
Dalhousie University Faculty of Medicine	
McGill University Faculty of Medicine	
University of Montreal Faculty of Medicine	

Requires a two year internship

United States and four in Canada exact the internship requisite. A few of the medical schools will accept research or other clinical work in lieu of the internship.

As revealed in table 12, twenty states, Alaska and the District of Columbia require that applicants for licensure possess a hospital internship. The first exacting this requirement was Pennsylvania in 1914. The

requirement in New Hampshire became effective in 1938, while in Alabama and Louisiana it will be a requirement beginning with 1939.

#### REGISTRATION 1904-1937

A study of totals and percentages (table 13) for thirty-four years (1904-1937) is of interest. The

TABLE 12—Internship Required by Medical Licensing Boards

	Effective Date		Effective Date
Alabama	1909	Oklahoma	1933
Alaska	1917	Oregon	1933
Delaware	1924	Pennsylvania	1914
District of Columbia	1930	Rhode Island	1917
Illinois	1923	South Dakota	1925
Iowa	1924	Utah	1926
Louisiana	1939	Vermont	1934
Michigan	1922	Washington	1919
New Hampshire	1938	West Virginia	1932
New Jersey	1916	Wisconsin	1927
North Dakota	1918	Wyoming	1931

TABLE 13—Registration—1904-1937

Year	All Candidates Examined		Registered Without Examination	Total Registered
	Passed	Percentage Failed		
1904	5,090	10.3	1,004	6,094
1905	5,658	20.8	294	6,082
1906	6,340	20.7	1,502	7,842
1907	5,730	21.3	1,427	7,157
1908	6,089	21.7	1,284	7,373
1909	5,864	19.6	1,318	7,182
1910	5,716	18.4	1,639	7,355
1911	5,582	19.8	1,248	6,830
1912	5,467	20.5	1,222	6,739
1913	5,242	18.6	1,291	6,543
1914	4,379	21.5	1,439	5,818
1915	4,507	15.5	1,398	5,905
1916	4,147	14.9	1,362	5,499
1917	4,054	14.1	1,360	5,444
1918	3,183	13.2	1,047	4,230
1919	4,074	14.2	2,545	6,619
1920	4,061	15.3	2,557	6,618
1921	4,276	12.4	2,183	6,459
1922	3,533	12.2	2,071	5,609
1923	4,027	14.6	2,403	6,430
1924	4,744	11.6	1,917	6,671
1925	5,447	9.2	1,540	7,306
1926	5,310	7.9	1,940	7,250
1927	4,995	7.2	2,173	7,168
1928	5,054	6.8	2,227	7,311
1929	5,280	6.2	2,419	7,699
1930	5,747	5.7	2,366	7,613
1931	5,260	6.2	2,212	7,472
1932	5,218	7.6	1,883	7,121
1933	5,939	7.6	1,987	7,296
1934	5,022	8.4	2,157	7,770
1935	5,847	9.1	2,194	8,041
1936	6,214	10.0	2,747	8,961
1937	6,589	10.0	3,178	9,767

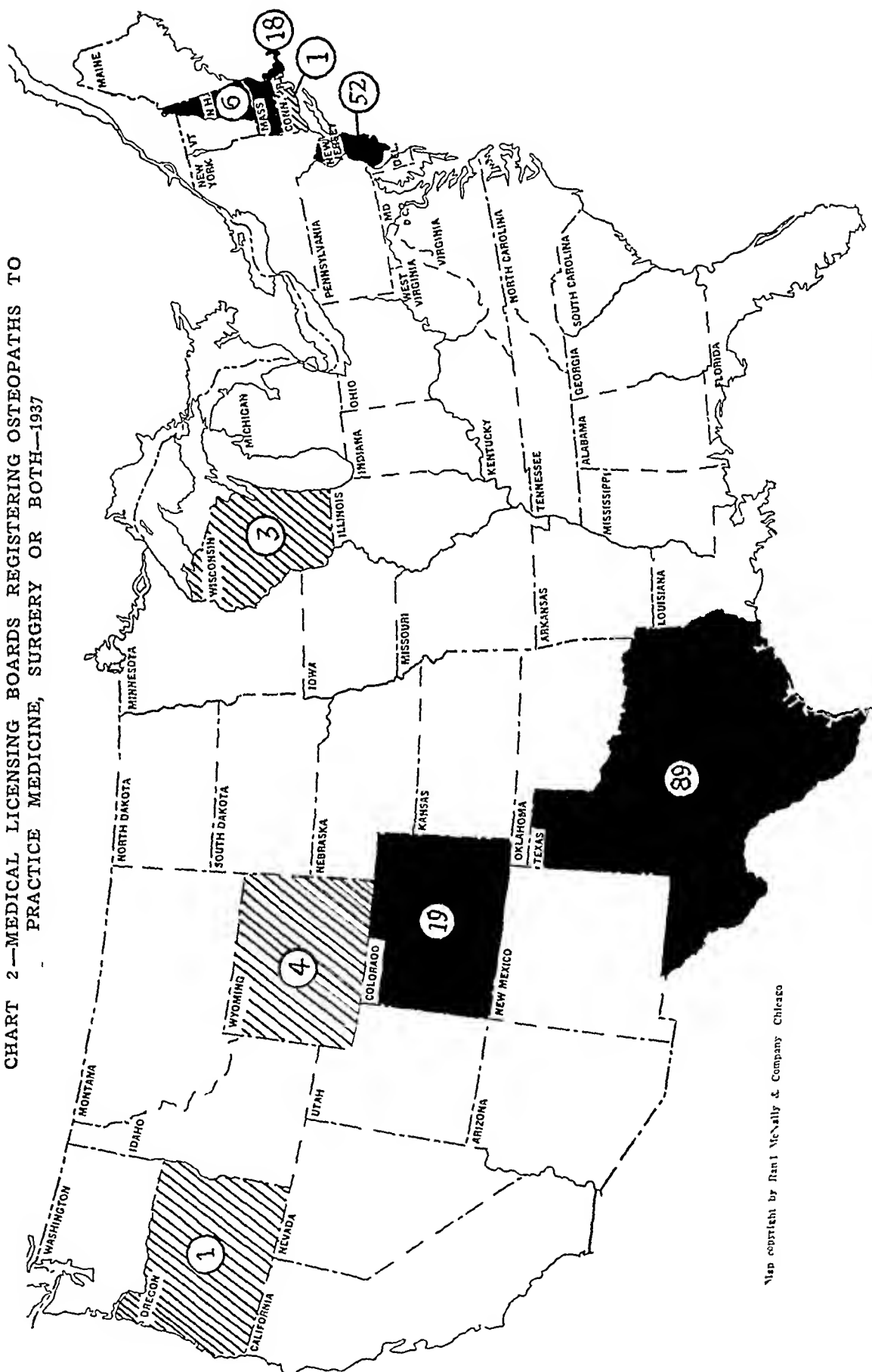
number (6,589) who passed in 1937 was 375 more than in 1936 and 899 more than in 1904. The number registered without examination, 3,178, was 431 more than in 1936. Contrasting these figures with those for 1904 will show the great use being made of this system of licensure. By both methods, examination and endorsement of credentials, 9,767 were registered, 806 more than in 1936. This figure represents the largest number of candidates registered in thirty-four years.

Ten per cent of those examined failed in 1937 as compared with 19.3 per cent in 1904. The failures in recent years represent to a large extent graduates of unapproved schools and foreign faculties.

While these figures represent those registered in the years given, they do not in all states represent the number licensed in a given year. Licenses are withheld in many states, as indicated in the text describing table 1.

There appears to be no marked increase or decrease in the total number of candidates registered from 1904 to 1933, but in the last five years the number registered has been markedly increasing. However, the number

CHART 2—MEDICAL LICENSING BOARDS REGISTERING OSTEOPATHS TO  
PRACTICE MEDICINE, SURGERY OR BOTH—1937



Map copyright by Raul McVally & Company Chicago

The states in black registered more than 5 such candidates those shaded 5 or less

licensed without examination since 1906 has been rapidly increasing, owing to the almost universal system of endorsement and the recognition of the certificate of the National Board of Medical Examiners. The decrease in the number registered in 1918 was due to the sudden withdrawal of physicians and recent graduates from civilian life. Again in 1922 there was a notable reduction, this figure representing the small class that began the study of medicine in 1918. There has been a substantial increase in the number registered in 1936 and a still larger increase in 1937 both by examination and by endorsement. The graduating classes of the approved medical schools for these two years were 5,183 and 5,377 respectively. It may be anticipated that within the next few years the number of those registered to practice medicine and surgery will decrease, as there has been a reduction in medical school enrolment. In seventy-seven schools there were 22,888 students enrolled in 1935, 22,564 in 1936 and 22,095 in 1937. Classes in subsequent years in many cases will be reduced.

**SOURCE OF PHYSICIANS REGISTERED**

The educational fitness of the individuals registered in the last sixteen years, 1922-1937, is shown in table 14. Of the 9,767 registered by all methods in 1937, 8,363, or 85.6 per cent, graduated from approved medical schools and there were 1,404, 14.4 per cent, other practitioners registered. In the computation of these figures, all schools rated as class A and B by the Council on Medical Education and Hospitals since 1907 are classified as approved. In the column "Others" are included graduates of institutions prior to 1907, of foreign faculties of medicine, class C graduates, undergraduates, osteopaths, and graduates of schools that have been refused all recognition as medical schools.

Of the 9,767 graduates registered in 1937, 6,589 were registered after examination and 3,178 by endorsement. There were 5,617 graduates of approved medical schools examined and 972 others. Likewise among those reg-

**GRADUATES OF OTHER THAN APPROVED MEDICAL SCHOOLS AND OSTEOPATHS REGISTERED**

In table 15 will be noted the total number of graduates of those institutions which have been classified as unapproved who were registered with or without examination from 1934 to 1937 inclusive.

Thirteen states and Hawaii registered 233 graduates of unapproved medical schools in 1937, 211 by examination and twenty-two without examination. The

TABLE 15—Graduates of Other Than Approved Medical Schools Registered—1934-1937

	Examination				Reciprocity and Endorsement				Totals
	1934	1935	1936	1937	1934	1935	1936	1937	
Arizona	0	0	0	2	0	0	0	0	2
Arkansas	1	0	0	0	0	0	0	0	1
California	1	1	0	0	0	2	0	0	4
Florida	1	1	1	2	0	0	0	0	5
Idaho	0	0	0	0	1	0	0	0	1
Illinois	33	67	84	82	0	0	0	0	266
Indiana	0	1	0	0	0	0	0	0	1
Kansas	1	0	0	0	0	0	0	0	1
Kentucky	1	1	0	0	0	0	2	2	6
Massachusetts	54	26	77	96	0	0	0	0	253
Mississippi	1	0	0	0	1	0	0	0	2
Missouri	0	0	0	0	0	2	0	0	2
Nebraska	0	0	0	0	0	0	0	1	1
New Jersey	0	0	0	1	4	0	1	2	13
New Mexico	0	0	1	0	0	2	1	0	4
New York	0	0	0	0	0	0	13	14	27
North Carolina	0	0	1	2	0	0	0	0	3
North Dakota	0	0	0	0	0	1	0	0	1
Ohio	0	16	31	23	1	0	0	0	71
Oklahoma	0	1	0	0	0	0	0	0	1
Pennsylvania	0	0	0	1	0	0	0	0	1
Rhode Island	0	1	0	0	0	0	0	0	1
South Dakota	0	1	0	0	0	0	0	0	1
Texas	0	0	0	0	2	0	0	3	5
Virginia	0	0	0	1	0	0	0	0	1
Wisconsin	0	0	0	0	0	0	1	0	1
Alaska and Hawaii	1	0	1	1	0	0	1	0	4
Totals	94	116	201	211	9	7	19	22	678

number of unapproved graduates increased by thirteen the number registered in 1936. One each was licensed in Nebraska, Pennsylvania, Virginia and Hawaii. No undergraduates were licensed in 1937, although two were examined. The twenty-three licensed by examination in Ohio and fourteen by endorsement in New York, three in New Jersey, two in Florida and Kentucky and one in Pennsylvania are graduates of the Eclectic Medical College of Cincinnati, which does not enjoy the approval of the Council on Medical Education and Hospitals but is approved by the states named. This school has not enrolled any new students for several years and plans to graduate its last class in 1939, when it will close. The 253 licensed in four years in Massachusetts represent mainly two unapproved schools located in that state and a few elsewhere. This state by law is required to admit to its examination a graduate of any chartered medical school but in 1936 amended its medical practice act appointing an approving authority. This new law goes into effect in 1940. The 266 graduates of the Chicago Medical School, an unapproved school, were registered by examination in Illinois in four years.

In the four year period shown, 622 graduates of unapproved schools and undergraduates were registered by examination and fifty-seven by reciprocity, a total of 679.

Chart 1 indicates by shaded lines those registering fewer than six graduates of unapproved medical schools and by a solid area those registering more than five such candidates during 1937.

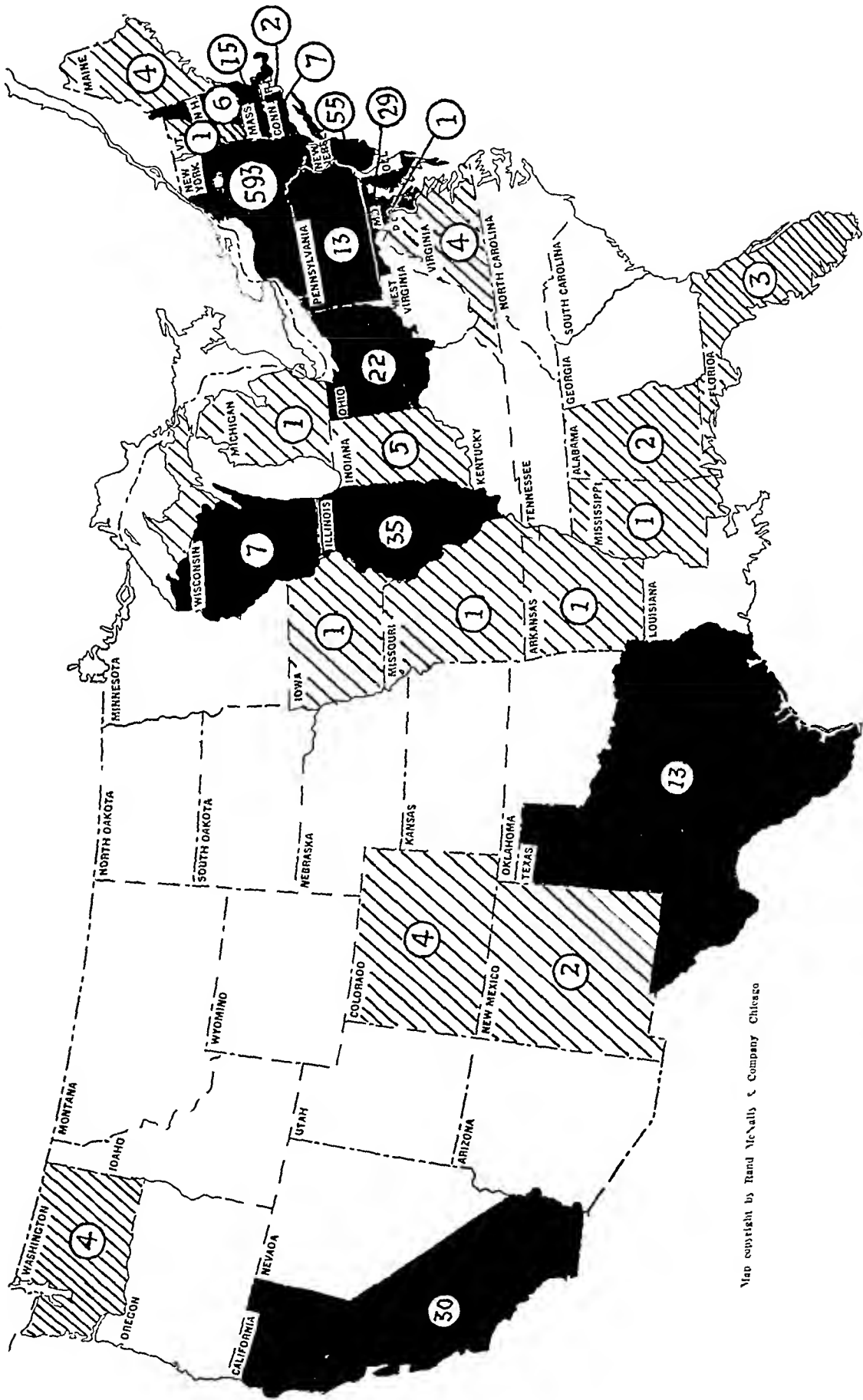
In table 16 are given the number of graduates of schools of osteopathy who were registered with or without examination in 1934 to 1937 inclusive.

TABLE 14—Graduates of Approved Schools and Others Registered 1922-1937

Year	Graduates of Approved Schools		Others		Totals
	Number	Per Cent	Number	Per Cent	
1922	4 518	80.6	1 091	19.4	5 609
1923	5 196	80.8	1 234	19.2	6 430
1924	5 685	82.2	1 286	14.8	6 971
1925	6 313	86.4	993	13.6	7 306
1926	6 437	88.7	823	11.3	7 260
1927	6 409	89.4	769	10.6	7 168
1928	6 584	90.1	727	9.9	7 311
1929	7 007	91.0	697	9.0	7 699
1930	7 011	90.1	692	7.9	7 613
1931	6 931	92.8	541	7.2	7 442
1932	6 674	93.7	447	6.3	7 121
1933	6 771	93.7	459	6.3	7 226
1934	7 168	92.1	611	7.9	7 779
1935	7 362	91.6	679	8.4	8 041
1936	7 908	88.3	1 056	11.7	8 961
1937	8 363	85.6	1 404	14.4	9 767

istered by endorsement there were 2,746 approved graduates and 432 others. Approved graduates, those physicians who graduated prior to the first classification of medical schools and graduates of foreign faculties of medicine were registered in Alabama, Delaware, Idaho, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Montana, Nevada, North Dakota, Oklahoma, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Vermont, Washington, West Virginia, Alaska and Puerto Rico.

CHART 3—STATES REGISTERING GRADUATES OF MEDICAL FACULTIES ABROAD—1937



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The states in black registered more than 5 such candidates those shaded 5 or less

In 1937, nine states registered 113 by examination and eighty by endorsement of credentials. These osteopaths were registered in Colorado, Connecticut, Massachusetts, New Hampshire, New Jersey, Oregon, Texas, Wisconsin and Wyoming.

These osteopaths were granted the right to practice medicine, surgery or both by the Board of Medical Examiners. These facts for 1937 are shown graphically in chart 2.

Seventy-seven osteopaths failed of registration by examination as follows: two in Colorado and Connecticut, forty-four in Massachusetts, nineteen in New Jersey, nine in Texas and one in Wyoming.

In the four year period 1934-1937, 383 graduates of osteopathic schools secured the privilege of practicing medicine, surgery or both in nine states.

In Colorado osteopaths are admitted to the examination for a license to practice medicine. They have no separate board. The statute of Colorado is silent with respect to the scope of practice authorized by a license issued to osteopaths.

The Connecticut statute provides that any registered osteopath may practice either medicine, surgery or both, as the case may be, after passing a satisfactory examination before the medical examining board.

The Massachusetts statute, by definition, includes osteopathy in the practice of medicine and does not differentiate the type of license issued to an osteopathic applicant. The medical practice act requires that any applicant for license to practice must be in possession of a degree of doctor of medicine, or its equivalent, from a legally chartered medical school that gives a full four year course of instruction of not less than thirty-two weeks in each year. As has been said, the Massachusetts statute has been amended.

In New Hampshire osteopaths are granted the right to practice medicine and surgery by the Board of Registration in Medicine.

Osteopaths who are duly registered and licensed to practice osteopathy in the state of New Jersey, who present three years of practice of surgery in a hospital

TABLE 16—Graduates of Schools of Osteopathy Registered by Medical Licensing Boards—1934-1937

	Examination				Reciprocity and Endorsement				Totals
	1934	1935	1936	1937	1934	1935	1936	1937	
Colorado	10	13	16	19	0	0	0	0	38
Connecticut	1	0	1	1	0	0	0	0	3
Massachusetts	21	1	12	18	0	0	0	0	52
New Hampshire	0	0	0	4	0	0	0	2	6
New Jersey	0	2	0	2	0	0	0	0	4
Oregon	0	0	0	1	0	0	0	0	1
Texas	7	7	11	17	17	13	34	2	108
Wisconsin	2	0	3	1	3	0	0	2	16
Wyoming	0	0	0	0	1	2	4	4	11
Totals	41	27	43	113	21	15	43	80	383

approved by the Board of Medical Examiners, may be admitted to the examination to be licensed to practice medicine and surgery.

Osteopaths are granted the privileges of surgery in Oregon by the Board of Medical Examiners.

The statutes of Texas provide for the issuing of a license to practice medicine only. So far as the statutes indicate, the osteopaths are not restricted in their field of practice.

In Wisconsin and Wyoming osteopaths are granted the right to practice surgery.

It is to be regretted that such persons as those described in tables 15 and 16 are granted the right

to practice medicine or surgery. The medical profession should be ever watchful and untiring in its efforts to prevent osteopaths and others from gaining the legal right to practice medicine or surgery, for which their training is wholly inadequate. If the licensing boards were more fully conscious of their responsibility to protect the citizens of their respective communities from ignorance and incompetence masquerading as medical skill, we should not continue to have year after year licenses granted to persons whose training falls so far short of the currently accepted standards of medical education.

TABLE 17—Annual Registration

Arkansas (Eclectic Board only)	Nebraska
California	Nevada
Colorado	New York
Connecticut	North Dakota
Florida	Oregon
Georgia	Pennsylvania
Iowa	Texas
Kansas	Utah
Louisiana	Wyoming
Minnesota	

Five states—Alabama, Delaware, Florida, Mississippi and North Carolina—require physicians to pay annually an occupational or commercial tax. The fee for this registration is generally \$2.

#### ANNUAL REGISTRATION

Eighteen states, as shown in table 17, require that all physicians licensed register annually, whether or not they reside in the state.

#### GRADUATES OF FACULTIES OF MEDICINE ABROAD

A study of the number of students from the United States pursuing medical courses in Europe has been carried on by the Council on Medical Education and Hospitals since 1931. There were in 1937 more than 1,500 studying abroad who in all probability plan to return to the United States to practice. Table 18 presents statistics on the number of graduates of faculties of medicine abroad examined for licensure in 1937. It is not known how many of these are foreign born but many of those licensed each year represent students from the United States. The figures in the accompanying tabulations therefore represent both American and foreign born physicians. Eighty-seven medical schools, excluding five licensing corporations, of eighteen European and seven other countries were represented. There were 919 examined, of whom 636 passed and 283, 30.7 per cent failed. Graduates of the University of Berlin were licensed in fourteen states and the University of Munich and Budapest in ten states. All other schools were represented in less than eight states. Twenty-six states, Hawaii and Puerto Rico examined physicians educated abroad. The state of New York had the greatest number, 596, of whom 397 passed and 199, 33.3 per cent, failed. New Jersey examined fifty-nine with thirteen, 22 per cent of failures. Maryland was third with fifty-two examined, twenty-eight passed and twenty-four, 46.1 per cent, failures.

In addition to the figures represented in this table, 238 graduates of foreign medical faculties were licensed in 1937 without examination and 147 of the 238 so registered were granted licenses on the basis of their foreign diplomas and licenses, while the remainder, 91, had already been examined by a medical board in this country.

Chart 3 shows in graphic form the states which during 1937 registered graduates of foreign medical

(CONTINUED ON PAGE 1367)



TABLE 18—*Graduates of Medical Faculties in Countries Other Than the United States and Canada Examined—1937*

[illegible]

47	National University of Athens	GRFFCF	1 0	1 1	0 1 0 1	5	2	3	600	4	47
48	Universidad Nacional de Guatemala	GUUYMALA	1 0			1	1	0	0 0	1	48
49	Magyar Királyi Felsőoktatási Tudományegyetem Pécs	HUNGARY				0 1					49
50	Magyar Királyi I. Ferenc József Tudományegyetem Szeged					0 1					50
51	Magyar Királyi J. Á. Szent Péter Tudományegyetem Buda		1 0	1 0	2 0 1 1	1 0	2 2	1 0	1 0	1 1	51
52	Magyar Királyi Felsőoktatási Tudományegyetem Debrecen		1 0	1 1		1 1					52
53	National University of Ireland	IRELAND	1 0	1 1	1 1 0	1 0	2 1	1 1	1 0		53
54	Regia Università di Bologna	ITALY	1 0	1 1	1 0	1 0	1 3	1 0	1 0		54
55	Regia Università di Padova		1 0	1 1	1 0	1 0	0 1	0 1	0 1		55
56	Regia Università di Pisa		1 0	1 1	1 0	1 0	0 1	0 1	0 1		56
57	Regia Università di Roma		1 0	1 1	1 0	1 0	0 1	0 1	0 1		57
58	Regia Università di Torino		1 0	1 1	1 0	1 0	0 1	0 1	0 1		58
59	Regia Università di Venezia		1 0	1 1	1 0	1 0	0 1	0 1	0 1		59
60	Regia Università di Napoli		1 0	1 1	1 0	1 0	0 1	0 1	0 1		60
61	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		61
62	Regia Università di Catania		1 0	1 1	1 0	1 0	0 1	0 1	0 1		62
63	Regia Università di Messina		1 0	1 1	1 0	1 0	0 1	0 1	0 1		63
64	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		64
65	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		65
66	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		66
67	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		67
68	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		68
69	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		69
70	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		70
71	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		71
72	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		72
73	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		73
74	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		74
75	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		75
76	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		76
77	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		77
78	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		78
79	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		79
80	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		80
81	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		81
82	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		82
83	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		83
84	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		84
85	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		85
86	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		86
87	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		87
88	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		88
89	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		89
90	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		90
91	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		91
92	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		92
93	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		93
94	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		94
95	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		95
96	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		96
97	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		97
98	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		98
99	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		99
100	Regia Università di Palermo		1 0	1 1	1 0	1 0	0 1	0 1	0 1		100

TABLE 19—Graduates of Medical Faculties of Universities in Countries Other Than the United States and Possessions, 1932-1937  
Examined by Licensing Boards of the United States and Possessions, 1932-1937

	1932 1936		1937			1932 1936		1937						
	Number Examined	Percentage Failed	Number Examined	Percentage Failed		Number Examined	Percentage Failed	Number Examined	Percentage Failed					
AUSTRALIA														
University of Adelaide	1	0 0	0	0 0	IRAN (PERSIA)									
University of Sydney	0	0 0	1	0 0		Government Medical School, Teheran								
AUSTRIA														
Karl Franzens Universität Graz	19	2 6	6	16 7	IRELAND									
Leopold Franzens Universität Innsbruck	3	33 3	5	40 0	Licentiate of the Royal College of Physicians of Ireland and of the Royal College of Surgeons in Ireland									
Universität Wien	126	31 0	85	21 2	National University of Ireland									
BELGIUM										Queen's University Belfast	3	33 3	0 0	
Université Catholique de Louvain	6	50 0	0	0 0	University of Dublin					5	50 0	1 0		
Université de Liège	3	100 0	2	50 0						4	50 0	0 0		
Université Libre de Bruxelles	2	0 0	0	0 0	ITALY					4	50 0	0 0		
Universität Gent	0	0 0	1	100 0	Regia Università di Benito Mussolini di Bari					0	0 0	1 0		
CHILE										Regia Università di Bologna	2	45 1	14 5	
Universidad de Chile Santiago	1	0 0	1	0 0	Regia Università di Catania					1	0 0	0 0		
CHINA										Regia Università di Firenze	8	3 5	0 17 3	
Pennsylvania Medical School Shanghai	1	0 0	2	0 0	Regia Università di Genova					0	7 8	4 7 8		
CHOSSEN										Regia Università di Messina	0	0 0	0 17 3	
Severance Union Medical College Kijo	2	100 0	0	0 0	Regia Università di Milano					2	0 0	3 0		
COLOMBIA										Regia Università di Modena	6	83 3	1 17 3	
Universidad de Cartagena	1	0 0	0	0 0	Regia Università di Napoli					119	62 2	41 50		
CUBA										Regia Università di Padova	15	60 0	5 0 0	
Universidad de la Habana	17	35 3	3	66 7	Regia Università di Palermo					32	81 1	0 0		
CZECHOSLOVAKIA										Regia Università di Pavia	3	33 3	0 0	
Deutsche Universität Prag	20	45 0	4	50 0	Regia Università di Perugia					1	0 0	3 17 3		
Masarykova Univerzita Brno	6	83 3	0	0 0	Regia Università di Pisa					1	0 0	3 17 3		
Univerzita Karlova Praha	5	60 0	4	70 0	Regia Università di Roma					1	0 0	3 17 3		
Univerzita Komenského Bratislava	5	60 0	0	0 0	Regia Università di Siena					1	0 0	3 17 3		
DOMINICAN REPUBLIC										Regia Università di Torino	2	0 0	0 0	
Universidad de Santo Domingo	4	20 0	0	0 0	JAPAN					0	0 0	1 17 3		
ENGLAND										Japan Medical College Tokyo				
Fellow of the Royal College of Physicians of London	1	0 0	0	0 0	LEBANON					3	0 0	0 0		
Licentiate in Medicine Surgery and Midwifery of the Apothecaries Society of London	4	70 0	1	0 0	American University of Beirut					3	66 7	0 0		
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Physicians of London	2	50 0	0	0 0	Université de St Joseph Beyrouth					3	66 7	0 0		
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	47	8 5	10	12 5	MEXICO					1	100 0	0 0		
University of Birmingham	1	0 0	2	0 0	Escuela Libre de Homeopatía del Estado de Puebla					3	33 3	0 17 3		
University of Bristol	1	0 0	0	0 0	Escuela Médico Militar México D F					1	100 0	0 0		
University of Cambridge	0	0 0	1	0 0	Instituto Literario y Científico San Luis Potosí					1	0 0	0 0		
University of Durham	7	28 6	1	0 0	Universidad de Guadalajara					1	0 0	0 0		
University of Liverpool	0	0 0	1	0 0	Universidad Nacional México D F					10	50 0	4 17 3		
University of London	7	42 0	1	0 0	NETHERLANDS					2	0 0	1 17 3		
University of Oxford	0	0 0	1	0 0	Rijks Universiteit te Leiden					1	0 0	0 0		
University of Sheffield	5	20 0	1	0 0	Universiteit van Amsterdam					2	0 0	0 0		
ESTONIA										Kongelige Frederiks Universitet Oslo				
Universitét de Tartu	1	0 0	0	0 0	POLAND					6	50 0	0 0		
FRANCE										Uniwersytet Jana Kazimierza Lwów				
Université de Bordeaux	1	0 0	2	50 0	Uniwersytet Józefa Piłsudskiego Warszawa					1	0 0	0 0		
Université de Lyon	3	33 3	3	33 3	Uniwersytet Stefana Batorego Wilno					0	0 0	1 17 3		
Université de Montpellier	4	25 0	1	100 0	PORTUGAL					5	60 0	0 0		
Université de Paris	52	38 5	31	25 8	Universidade de Lisboa					2	50 0	0 0		
Université de Strasbourg	6	33 3	2	0 0	Universitatea din Bucuresti					8	62 5	0 0		
Université de Toulouse	4	25 0	1	0 0	Universitatea Regele Ferdinand I din Cluj					8	62 5	0 0		
GERMANY										SCOTLAND				
Albert Ludwigs Universität Freiburg	26	34 6	18	44 4	Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow					0	0 0	1 0 0		
Albertus-Universität Königsberg	5	60 0	8	50 0	Licentiate of the Royal College of Physicians of Edinburgh					1	0 0	0 0		
Christian Albrechts Universität Kiel	2	0 0	1	0 0	Licentiate of the Royal College of Physicians and of the Royal College of Surgeons Edinburgh					6	0 0	1 0 0		
Eberhard Karls Universität Tübingen	5	40 0	4	50 0	School of Medicine of the Royal Colleges Edinburgh					5	0 0	0 0		
Ernst Moritz Arndt Universität Greifswald	3	33 3	0	0 0	University of Aberdeen					14	21 4	1 0 0		
Friedrich Alexanders Universität Erlangen	7	71 4	4	50 0	University of Edinburgh					6	110	12 17 3		
Friedrich Wilhelms Universität Berlin	111	33 3	71	31 0	University of Glasgow					23	0 0	0 0		
Georg August Universität Göttingen	1	0 0	0	0 0	University of St Andrews					87	17 6	10 0 0		
Hamburgische Universität	30	20 0	18	16 7	SOUTH AFRICA UNION OF					1	0 0	0 0		
Hessische Ludwigs Universität Gießen	2	0 0	4	0 0	University of Cape Town					3	32 3	2 0 0		
Johann Wolfgang Goethe Universität Frankfurt am Main	25	40 0	14	14 3	SPAIN					0	0 0	1 0 0		
Julius Maximilians Universität Würzburg	18	50 0	15	33 3	Universidad Central de España Madrid					0	0 0	1 0 0		
Ludwig Maximilians Universität München	31	32 3	32	21 9	Universidad de Santiago					1	0 0	0 0		
Medizinische Akademie Düsseldorf	3	33 3	6	33 3	Universidad de Sevilla					1	0 0	0 0		
Philippus Universität Marburg	1	0 0	0	0 0	SWITZERLAND					24	37 5	0 0 0		
Rheinische Friedrich Wilhelms Universität Bonn	5	40 0	4	0 0	Universität Basel					62	41 9	0 0 0		
Schlesische Friedrich Wilhelms Universität Breslau	29	31 0	13	23 1	Universität Bern					37	2 1	0 0 0		
Thüringische Landesuniversität Jena	7	38 6	2	0 0	Universität Zürich					40	27 5	0 0 0		
Universität Heidelberg	24	12 5	18	16 7	Université de Genève					17	27 5	0 0 0		
Universität Köln	13	30 8	8	37 5	TURKEY					0	0 0	1 17 3		
Universität Leipzig	21	42 9	8	25 0	University of Istanbul					1	100 0	0 0 0		
Universität Rostock	1	100 0	5	40 0	UNION OF SOCIALIST SOVIET REPUBLICS					1	100 0	0 0 0		
Vereinigte Friedrichs Universität Halle Wittenberg	1	0 0	1	0 0	First Leningrad Medical Institute					4	70 0	0 0 0		
Westfälische Wilhelms Universität Münster	3	66 7	0	0 0	First Moscow Medical Institute					4	70 0	0 0 0		
GREECE										Kharkov Medical Institute				
National University of Athens	7	85 7	5	60 0	Kiev Medical Institute					3	0 0	0 0 0		
GUATEMALA										Military Medical Academy Leningrad				
Universidad Nacional de Guatemala	1	100 0	1	0 0	Psycho-neurological Institute Petrograd					2	100 0	0 0 0		
HUNGARY										Saratov Medical Institute				
Magyar Királyi Erzsébet Tudományegyetem Pécs	7	57 1	1	100 0	Second Leningrad Medical Institute					2	50 0	0 0 0		
Magyar Királyi Ferenc József Tudományegyetem Szeged	4	25 0	1	100 0	Tomsk Medical Institute					2	50 0	0 0 0		
Magyar Királyi Pázmány Petrus Tudományegyetem Budapest	19	21 1	17	23 3	YUGOSLAVIA					2	50 0	0 0 0		
Magyar Királyi Tisza István Tudományegyetem Debrecen	0	0 0	2	20 0	Belograd log Univerzitet					2	50 0	0 0 0		
										Zagreb log Univerzitet				

(CONTINUED FROM PAGE 1363)

faculties by examination, endorsement or both. From a perusal of tables 2, 4 and 5 it can be ascertained how many were licensed by both these means in the various states. The states which licensed more than five graduates are indicated in black on the chart, those shaded, five or less.

In table 19 are assembled figures showing the standing during the six year period 1932-1936 of the graduates of faculties of medicine outside the United States and Canada admitted to licensing examinations in this country. A similar tabulation is presented for the year 1937. One hundred and twenty-eight schools and nine licensing corporations of Great Britain were represented. During the five year period 1,688 were examined and in 1937, 919. The largest number represented the

TABLE 20—*Graduates of Faculties of Medicine Abroad Examined—1930-1937*

Year	Number Examined	Passed	Percentage Failed
1930	167	92	44.9
1931	153	91	42.4
1932	182	96	47.3
1933	200	129	35.5
1934	289	170	40.2
1935	437	303	30.7
1936	558	352	34.1
1937	910	636	30.7

Regia Università di Roma, 136, of whom 44.4 per cent failed. The Universität Wien in the five year period was second, 126, of whom 21.2 per cent failed. There were 119 from the Regia Università di Napoli with 58.5 per cent failures. A study of the percentage failed is of interest. Here again an attempt has been made to show procedure over a period of years, and if an individual fails or is examined in various states he is recorded as such for a given year.

Table 20, the last in this group of statistics, records the number of graduates of faculties of medicine abroad examined in the United States in eight years, 1930 to 1937 inclusive. There were 331 more examined in 1937 than in 1936 and 752 more than in 1930.

### BASIC SCIENCE BOARDS

A certificate in the basic sciences is a prerequisite to licensure in twelve states and the District of Columbia. While the laws of some of these states include reciprocal agreements, the certificate is obtainable after examina-

TABLE 1—*States Having Basic Science Laws and Year of Enactment*

State	Year Enacted	State	Year Enacted
Arizona	1903	Minnesota	1927
Arkansas	1929	Nebraska	1927
Colorado	1937	Oklahoma	1937
Connecticut	1925	Oregon	1933
District of Columbia	1909	Washington	1927
Iowa	1900	Wisconsin	1925
Michigan	1937		

tion in the majority of instances. Boards for certification of candidates functioned during 1937 in ten states and the District of Columbia and a board has functioned since July 1937 in Colorado, while in Michigan an examining board has not yet been appointed. The ten states include Arizona, Arkansas, Connecticut, Iowa, Minnesota, Nebraska, Oklahoma, Oregon, Washington and Wisconsin. In 1937 basic science requirements were established in Colorado, Michigan and Oklahoma

and were introduced in several states. In table 1 is shown the years in which the various acts were enacted.

Statistics based on the number of candidates certified in 1937, and those who failed to secure this certification, together with the totals for other years shown for comparison, are included in the accompanying tabulations.

TABLE 2—*Subjects of Examinations*

	Examinations Required in						
	Anat omy	Bacteri ology	Chem istry	Diag nosis	Hy giene	Pathol ogy	Physi ology
Arizona	+	+	+		+	+	+
Arkansas	+	+	+			+	+
Colorado	+	+	+			+	+
Connecticut	+			+	+	+	+
District of Columbia	+	+	+			+	+
Iowa	+	+	+		+	+	+
Michigan	+	+	+		+	+	+
Minnesota	+	+	+		+	+	+
Nebraska	+	+	+		+	+	+
Oklahoma	+	+	+		+	+	+
Oregon	+		+		+	+	+
Washington	+		+		+	+	+
Wisconsin	+			+		+	+

The subjects in which examinations are conducted in the respective states and the District of Columbia are given in table 2. The subjects included in basic science examinations are specified by the statutes. The examining boards may neither add to nor subtract from such subjects.

Applicants examined during 1937 in the various groups—physicians or medical students, osteopaths, chiropractors and those unclassified—are included in table 3. There were 1,344 examined by twelve boards. Of this number 1,231 were doctors of medicine or medical students (referred to hereafter for clarity as

TABLE 3—*Applicants Examined—1937*

	Physicians or Med Students		Osteo paths		Chiro prac tors		Un classi fied		Total Examined	Passed	Failed	Percentage Failed
	P	F	P	F	P	F	P	F				
Arizona	45	11	1	0	0	0	0	3	60	46	14	23.3
Arkansas	45	0	3	0	0	0	0	0	48	48	0	0.0
Colorado	10	3	0	0	0	0	0	0	13	10	3	23.1
Connecticut	144	4	2	0	0	2	1	0	153	147	6	3.9
Dist. of Columbia	26	7	0	0	0	0	0	0	33	26	7	21.2
Iowa	55	31	0	7	0	0	2	8	112	66	46	41.1
Minnesota	170	43	4	6	2	1	0	0	223	183	40	21.3
Nebraska	91	27	0	0	0	0	1	4	123	94	29	24.8
Oklahoma	100	11	1	8	0	0	0	0	120	101	19	15.8
Oregon	82	18	2	2	0	0	1	4	109	83	26	22.0
Washington	121	13	3	7	3	7	0	0	156	129	27	17.3
Wisconsin	10	2	5	4	0	3	1	6	180	165	15	8.3
Totals—Examined	1,231		64		18		31		1,344			
Totals—Passed	1,011		20		5		6			1,102		
Totals—Failed	170		24		13		25				242	
Percentage—Failed	13.8		31		72.2		80.6					18.0

physicians), sixty-four osteopaths and eighteen chiropractors, and for thirty-one it was not possible to determine what profession they represented. In applying for a basic science certificate it is not necessary in several of the states to mention the school of practice, but by checking the biographic records of the American Medical Association it has been possible to determine what profession the majority of the candidates represented. The remainder composed the unclassified group. Of all examined, 1,102 passed and 242 failed, 18.0 per cent. Of the physicians examined 13.8 per cent failed, of the osteopaths 31.1 per cent, of the chiropractors 72.2 per cent and of those unclassified 80.6 per cent. There were 1,061 physicians who passed,

thirty osteopaths, five chiropractors and six unclassified Minnesota examined the largest number, 235, of whom 21.3 per cent failed. The next largest number, 180, were examined in Wisconsin, with 8.3 per cent failures. Osteopaths were examined in Arizona, Arkansas, Connecticut, Iowa, Minnesota, Oklahoma, Oregon, Washington and Wisconsin. Chiropractors were examined in Connecticut, Minnesota, Washington and Wisconsin. One state, Arkansas, examined forty-five physicians and three osteopaths, all of whom passed. In the two states which examined for the first time during 1937, namely, Colorado and Oklahoma, there were examined, respectively, thirteen physicians in Colorado and 111 physicians and nine osteopaths in Oklahoma. Of those examined in Colorado 23.1 per cent failed, and in Oklahoma 15.8 per cent. The highest percentage of failures (41.1) was in Iowa, which examined eighty-six physicians, sixteen osteopaths and ten unclassified candidates.

The number of certificates granted by examination, reciprocity and endorsement are listed in table 4. A total of 1,102 certificates were granted after examination, of which 1,061 were issued to physicians, thirty to osteopaths, five to chiropractors and six to persons who were unclassified. There were 175 candidates certified without examination, by reciprocity or endorsement, consisting of 165 physicians and ten osteopaths. Minnesota accepted the greatest number without examination, sixty, of whom fifty-nine were physicians and one an osteopath. Wisconsin registered forty-five physicians and three osteopaths by this method, and Arkansas twenty-three physicians and two osteopaths. Arizona, Connecticut, the District of Columbia, Oklahoma and Washington licensed none without examination. Arizona and Washington, by law, have no reciprocal agreements. No chiropractors or those in the unclassified group were licensed without examination.

Table 5 shows the number of candidates examined and certified from 1927 to 1937 inclusive. In 1928, when five boards were functioning, there were 646 physicians examined, of whom sixty, or 9.3 per cent,

were certified without examination, while only sixty-five other practitioners were so registered.

Altogether, 8,792 certificates have been issued by basic science boards since 1927, of whom 8,372 were granted to physicians and 420 to other practitioners. From the high percentage of failures in the other practitioner group it seems apparent that the enforcement

TABLE 5—Total Candidates 1927-1937

	No. of Boards	Physicians or Med. Students					Other Practitioners				
		Examinations				Total Certified	Examinations				Total Certified
		Examined	Passed	Failed	Percentage Failed		Examined	Passed	Failed	Percentage Failed	
1927	5	305	249	26	8.5	26	22	15	7	31.8	17
1928	5	646	586	60	9.3	19	59	51	28	47.5	0
1929	7	638	610	28	4.4	70	66	31	35	53.0	0
1930	7	685	606	79	11.5	104	78	30	48	61.5	4
1931	7	680	556	94	13.8	130	107	45	62	57.9	0
1932	7	637	590	47	7.4	68	76	44	32	42.1	0
1933	8	691	527	74	10.7	117	60	30	30	50.0	0
1934	9	815	725	90	11.0	123	51	26	25	49.0	0
1935	10	852	761	121	14.2	92	74	33	41	55.4	0
1936	10	1,032	891	141	13.7	201	66	26	40	60.6	0
1937	12	1,231	1,061	170	13.8	165	113	31	82	73.0	1
Totals		8,202	7,222	980	11.9	1,150	774	333	441	57.1	1

of basic science laws affects most seriously this group. Examination of the records of a considerable number of states having basic science laws will show that before such laws were enacted the number of other practitioners appearing for examination and licensure was very considerable and was growing. The object of these boards has been to provide a means of insuring that all candidates seeking authority to care for sick and injured people shall first possess a reasonable knowledge of the sciences fundamental to the healing art.

### NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners organized in 1915, conducts examinations and awards successful candidates a certificate which is regarded as an adequate qualification for the practice of medicine. Since 1922 its examination has been given in three parts, parts I and II being written examinations and part III a practical and clinical examination. Data are presented regarding the examinations and the issuance of certificates and include tables enumerating the results of examinations in parts I, II and III for each calendar year, excluding duplication by counting the last examination if more than one part is taken within the year, and also of those certified or failing of certification. Also figures from compilations not reproduced here are discussed. Similar data have been presented in the State Board Number of THE JOURNAL for twenty years.

Four examinations were held in parts I and II during 1937, at which 1,435 and 855, respectively, were examined. In part I, 871 passed and 149, 14.6 per cent failed, while, in part II, 803 passed and 52 per cent failed. In part I 415 took incomplete examination. Candidates are required to take all six subjects of part I at a regular examination period unless entitled to take an incomplete examination or electing to take a divided examination. An incomplete examination is arranged for candidates taking part I at the end of their second medical year in schools whose third year curriculum include courses in one or two subjects of this part. II

TABLE 4—Certificates Issued by Examination, Reciprocity and Endorsement—1937

	Examination					Reciprocity and Endorsement					Registered
	Physicians or Med. Students	Osteopaths	Chiropractors	Unclassified	Totals	Physicians	Osteopaths	Chiropractors	Unclassified	Totals	
Arizona	45	1	0	0	46	0	0	0	0	0	46
Arkansas	47	3	0	0	50	23	0	0	0	23	73
Colorado	10	0	0	0	10	5	0	0	0	5	17
Connecticut	144	2	0	1	147	0	0	0	0	0	147
District of Columbia	26	0	0	0	26	0	0	0	0	0	26
Iowa	86	9	0	2	97	11	0	0	0	11	77
Minnesota	179	4	2	0	185	59	1	0	0	60	245
Nebraska	93	0	0	1	94	16	1	0	0	17	111
Oklahoma	100	1	0	0	101	0	0	0	0	0	101
Oregon	82	2	0	1	85	6	1	0	0	7	92
Washington	125	3	3	0	129	0	0	0	0	0	129
Wisconsin	159	5	0	1	165	45	3	0	0	48	213
Totals	1,061	30	5	6	1,102	165	10	0	0	175	1,277

failed and fifty-nine other practitioners, of whom twenty-eight, or 47.5 per cent, failed. In 1937, 1,226 physicians and fifty-one other practitioners were certified. During the eleven year period a total of 8,202 physicians were examined, of whom 980, 11.9 per cent, failed and 774 other practitioners, of whom 419, 54.1 per cent failed. During this period, 1,150 physi-



subjects thus postponed may be taken at any examination period after the candidate has completed them in his medical school. Any candidate not entitled to take an incomplete examination in part I may, if he so elects, take a divided examination by writing any four subjects at one time and the remaining two within thirteen months, but after at least one semester of study. Incomplete examinations were not included when percentages were being computed, since they represent neither a candidate eligible for certification nor a failure. One candidate took an incomplete examination in part II.

Since 1922 a total of 15,722 examinations have been given in part I and 8,257 in part II. From 1922 to 1937 inclusive 10,031 individuals were successful in passing part I and 7,434 in passing part II. The figures for those examined include 4,071 incomplete examinations in part I and thirty-six in part II. The figures cover the totals of each examination given during a calendar year and include some who fail and are reexamined during the same year and also some who pass parts I and II in the same year. Therefore they represent examinations conducted rather than individuals examined. In the sixteen year period since 1922 there have been 1,620 failures in part I, 13.9 per cent, and 787 in part II, 9.6 per cent.

TABLE 1—Examinations in Part III

Examinations of	Total Examined*	Passed	Failed	Percentage Failed
1922	92	22	0	0.0
1923	82	51	1	1.2
1924	126	120	6	4.8
1925	219	206	13	5.9
1926	255	243	12	4.7
1927	293	212	21	7.2
1928	372	306	16	5.0
1929	357	337	15	4.3
1930	420	401	19	4.5
1931	457	419	18	4.1
1932	550	522	23	5.1
1933	551	526	25	4.5
1934	567†	548	19	3.4
1935	595†	578	20	3.3
1936	516‡	447	29	5.0
1937	668§	630	33	5.7
Totals	6,044	5,758	280	4.6

\* Between 1916 and 1921 a total of 325 were examined of whom 268 passed and 57.14 per cent failed. Total certificates awarded 6.06. During this period only one examination for the certificate was given.

† Excluding referred examinations.

‡ Excluding 41 referred.

§ Excluding 53 referred.

In 1922, 388 were examined in part I with 20.3 per cent failures, as compared with 1,435 in 1937 with 14.6 per cent failures. In part II in 1922, 109 were examined and 17.4 per cent failed while, in 1937, 855 were examined and 5.1 per cent failed.

The results of examinations in part III for the sixteen year period 1922 to 1937 inclusive are represented in table 1 reproduced here. In 1937 668 were examined as compared with only twenty-two in 1922. Of the number examined in 1937 thirty-eight or 5.7 per cent failed. The highest percentage of failures was in 1927, when 293 were examined and twenty-one 7.2 per cent failed. During 1937 630 were granted certificates. In sixteen years 6,044 were examined of whom 5,758 were granted certificates and 280 4.6 per cent failed. Here again a candidate having failed may subsequently receive a certificate.

From 1916 to 1921 when the examination was not given in three parts 325 were examined of whom 268 passed and 5.7 per cent failed. Altogether from 1916 up to and including 1937 6,026 certificates have been granted.

The number of persons examined during any one year is given in table 2. The classification as passed or failed, in cases in which more than one examination has been taken in a given year, was based on the results of the last examination during the year in question. For example, if in 1937 a candidate passed part I but later failed part II, he is listed as having failed. Taking this

TABLE 2—Parts I, II and III, Excluding Duplications

	Total Examined	Passed	Incomplete	Failed	Percentage Failed
1922	575	381	58	86	18.4
1923	775	594	79	102	14.7
1924	918	756	69	153	16.8
1925	1,167	915	50	202	18.1
1926	1,161	930	105	126	11.9
1927	1,248	947	142	159	14.4
1928	1,430	1,101	211	118	9.7
1929	1,723	1,250	319	124	8.8
1930	2,044	1,547	322	175	10.2
1931	2,218	1,632	410	176	9.7
1932	2,342	1,850	350	187	6.9
1933	2,277	1,806	280	191	9.6
1934	2,261	1,801	330	130	6.7
1935	2,368	1,831	403	129	6.6
1936	2,515	1,937	353	175	8.1
1937	2,735	2,151	397	187	8.0
Totals	27,767	21,509	3,888	2,370	9.9

into consideration, there were 2,735 who took at least one of the examinations of the National Board of Medical Examiners during 1937, as compared with 525 in 1922. A total of 27,767 were examined in one or more of the examinations in the sixteen years shown, of whom 21,509 passed, 2,370 failed, 3,888 took incomplete examinations and 9.9 per cent failed.

Diplomates licensed on the basis of their credentials have increased from only two in 1917 to 559 in 1937, 4,120 having been so licensed since the National Board was created. A total of 6,026, however, have received the certificate of the National Board. In 1937, 559 diplomates were registered on the basis of credentials in forty states, the District of Columbia, Alaska, Hawaii and Puerto Rico.

The certificate of the National Board of Medical Examiners is granted recognition by the licensing boards of forty-two states and Alaska, Canal Zone, Hawaii and Puerto Rico (table 3).

Some of these boards have additional requirements. Diplomates of the National Board of Medical Examiners are admitted to the final examination given by the Conjoint Examining Boards of England and Ireland.

TABLE 3—States Endorsing Certificates of National Board of Medical Examiners

Alabama	Indiana	Nevada	Rhode Island
Alaska	Iowa	New Hampshire	South Carolina
Arizona	Kansas	New Jersey	South Dakota
Arkansas	Kentucky	New Mexico	Tennessee
California	Maine	New York	Utah
Canal Zone	Maryland	North Carolina	Vermont
Colorado	Massachusetts	North Dakota	Virginia
Connecticut	Minnesota	Ohio	Washington
Delaware	Mississippi	Oklahoma	West Virginia
Georgia	Missouri	Oregon	Wyoming
Hawaii	Montana	Pennsylvania	
Illinois	Nebraska	Puerto Rico	

and the Triple Qualification Board of Scotland. The certificate is recognized also in South Africa, Spain, Syria and Turkey.

Examinations in parts I and II are held at class A medical schools where there are five or more candidates available, and part III is held in twenty-two established centers throughout the United States.

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SATURDAY, APRIL 23, 1938

## MEDICAL EDUCATION AND LICENSURE

Ten years before the Declaration of Independence, the colony of New York enacted a statute, the first of its kind in the New World, fixing professional qualifications for the practice of medicine. It forbade such practice to all who failed to satisfy the legal requirements, namely, a satisfactory examination conducted by the governor of the province, a judge and an officer of his majesty's army. In all our states similar legislation has been adopted. From time to time variations in the precise method of determining the candidate's fitness have been introduced. Once membership in a medical society was proposed as a necessity, another time a diploma from a medical school was required. During the last quarter of the nineteenth century most of the states set up official boards to test by examination the fitness of candidates for medical licensure.

After several years' study the first classification of medical schools by the Council on Medical Education of the American Medical Association, published in 1907, showed that there were many low grade proprietary schools the graduates of which should not even be permitted to take the licensing examination. This conclusion the Carnegie Report of 1910 abundantly confirmed. Although many states have taken steps to exclude the graduates of low grade schools, it is disconcerting to find that after thirty years there are still thirteen states<sup>1</sup> in which graduates of unrecognized institutions are being admitted to practice.

In Arizona the law requires that candidates for medical licensure shall be graduates of schools which maintain standards "not less than those prescribed by the Association of American Medical Colleges." Yet during the past year two licenses were issued to men who did not fulfil the statutory requirement.

Until the new law becomes effective, Massachusetts will continue to admit to examination the holder of a diploma from any legally chartered school. Ninety-six, therefore, from substandard schools have been licensed in this state.

Texas requires standards "as high as those adopted by the better class of medical schools" but nevertheless granted three licenses to persons who could not possibly satisfy the law.

The Virginia law specifies the standard of the American Medical Association or the American Institute of Homeopathy. One physician licensed in 1937 lacked such qualifications.

Nine states which leave it to the discretion of the board to determine whether medical schools are "reputable" or "satisfactory" nevertheless admitted to practice 130 graduates of unrecognized schools.

Laws regulating practice are designed to protect the public from the dangers of ignorance and incompetence masquerading as medical knowledge and skill. In spite of these laws we find that 232 licenses have been granted to those who failed to satisfy any reasonable standard of professional training. Do the laws really protect the people?

## FEDERAL FOOD AND DRUG BILL ADVANCED

The Committee on Interstate and Foreign Commerce of the House of Representatives reported to the House, April 14, a bill to prohibit, in interstate and foreign commerce and within the District of Columbia, commerce in adulterated and misbranded foods, drugs, diagnostic and therapeutic devices and cosmetics. This bill was offered as a substitute for what was left of the Copeland food, drugs, devices and cosmetics bill, S. 3, passed by the Senate March 9, 1937, after the House committee had stripped it of all provisions relating to advertising. The advertising provisions of the Copeland bill have already been incorporated, in a modified form, in the Wheeler-Lea Federal Trade Commission Act,<sup>1</sup> approved March 21, 1938.

Like the Wheeler-Lea Federal Trade Commission Act, the bill reported by the committee is a composite of provisions to protect the consumer against ignorant and unscrupulous manufacturers and dealers, and of provisions to protect manufacturers and dealers against consumers and law enforcement officers. It may be questioned whether the balance is in favor of the consumer or of the manufacturer and dealer. Foods and cosmetics are covered by the regulatory provisions of the bill more effectively than are drugs and diagnostic and therapeutic devices. The committee itself points out that the Food and Drugs Act of 1906 is greatly weakened by the absence of authoritative definition and standards of identity for foods. It proposes, therefore, that the Secretary of Agriculture be authorized to promulgate regulations fixing definitions and standards of identity for foods. It believes that this will meet the demands of the legitimate food industry, prevent chiseling operations on the part of some manufacturers and insure fair dealing in the interest of the consumer.

<sup>1</sup> States Registering Other than Graduates of Approved Medical Schools—1937 this issue p. 1358

<sup>1</sup> Public Law No. 447 75th Congress discussed in editorial in THE JOURNAL April 2, 1938 p. 1112

However, the committee has not written into its bill a single mandatory definition or standard for a drug or a diagnostic or therapeutic device nor authorized any officer or agency of the government to fix any definition or standard. So far as mandatory definitions and standards for drugs are concerned, the committee's bill is weaker than the law now in force, for it recognizes definitions and standards established by the Homeopathic Pharmacopeia of the United States and supplements to it and to the United States Pharmacopeia and the National Formulary, none of which are now recognized as authorities.

The bill reported by the committee retains the provisions of the Copeland bill that propose to authorize the Secretary of Agriculture to require by regulations that the labels of foods that are represented as having special dietary uses contain such information concerning their vitamin, mineral and other dietary properties as may be necessary to inform purchasers fully as to their value for such uses. It retains, too, the provisions of the Copeland bill authorizing the temporary control of any class of food, originating within a stated area, by a permit system to be established by the Secretary of Agriculture as occasion requires, so as to permit what might be termed a quarantine against foods liable to be contaminated by dangerous micro-organisms, such as *Bacillus botulinus*. Requirements as to disclosures on the labels of essential ingredients of composite foods are to be waived in favor of proprietary foods, if the committee's bill is enacted, whenever disclosure would give competitors information they could not otherwise obtain, if such ingredients have been disclosed to the Secretary of Agriculture.

The committee has incorporated in its bill provisions designed to prevent danger from the untimely introduction of new drugs. It proposes that no new drug shall be introduced into interstate and foreign commerce or in commerce in the District of Columbia unless an application, filed with the Secretary of Agriculture as required by law, is "effective with respect to such drug." A "new drug" is defined as—

(1) Any drug the composition of which is such that such drug is not generally recognized among experts qualified by scientific training and experience to evaluate the safety of drugs, as safe for use under the conditions prescribed, recommended, or suggested in the labeling thereof except that such a drug not so recognized shall not be deemed to be a 'new drug' if at any time prior to the enactment of this Act it was subject to the Food and Drugs Act of June 30 1906, as amended and if at such time its labeling contained the same representations concerning the conditions of its use or

(2) Any drug the composition of which is such that such drug, as a result of investigations to determine its safety for use under such conditions has become so recognized but which has not otherwise than in such investigations, been used to a material extent or for a material time under such conditions.

The exception in subparagraph 1 is apparently to cover secret ingredients in "patent" and proprietary medicines, such as a qualified expert would be unwilling to class as safe. Determination of the safety or danger of any new drug is to be based not on original investi-

gation by the Secretary of Agriculture but on data submitted by the applicant. If the secretary does not reject an application within sixty days after it is filed, it becomes effective as justification or excuse for the commercial distribution of the drug unless the secretary in writing claims an extension of time. In any event, he must reject an application within 180 days from its filing, if he rejects it at all, and if he does not it becomes "effective." The bill proposes that the secretary be authorized to promulgate regulations to permit the distribution of new drugs among qualified experts for the purpose of investigation, without being subject to the restrictions imposed on their distribution generally.

Drugs intended for use by man are to be labeled "Warning—May be habit forming," if they contain alpha eucaine, barbituric acid, beta-eucaine, bromal, cannabis, carbromal, chloral, coca, codeine, heroin, morphine, opium, paraldehyde, peyote or sulfonmethane or any chemical derivative of any such substance, which derivative has been found by the Secretary of Agriculture to be habit forming and so designated. Drugs dispensed on prescriptions of physicians, dentists and veterinarians, however, need not be so labeled and are exempted from such labeling if marked not to be refilled or if refilling is forbidden by law. If a drug is fabricated from two or more ingredients and is marketed under a name not recognized in an official compendium, its label need not bear the common or usual name of each active ingredient if such ingredients have been fully and correctly disclosed to the Secretary of Agriculture or if the drug is dispensed on the written prescription of a physician, dentist or veterinarian.

If the bill is enacted, its provisions will be enforced through cautionary notices, injunctions, seizures and prosecutions. The Secretary of Agriculture is expressly relieved from the duty of instituting proceedings against any one if he believes that the public interest will be served by a written notice or warning. Furthermore, no violation of the act may be reported to any United States attorney for the institution of criminal proceedings until the offender has been given an opportunity to present his views with regard to the contemplated proceeding. No person is to be fined or imprisoned for having received in interstate or foreign commerce any adulterated food, drug, device or cosmetic, and delivered it, if he did so "in good faith," or in commerce in the District of Columbia, if he discloses to the secretary, on request, the name and address of the person from whom he purchased it and gives copies of all pertinent papers relating to the transaction.

The bill reported by the House Committee on Interstate and Foreign Commerce, like the Copeland bill, proposes to strip the Secretary of the Treasury and the Secretary of Commerce of all authority they now have with respect to the promulgation of regulations for the enforcement of the Food and Drugs Act of 1906, except such as the Secretary of the Treasury has over

imports and exports. All other regulatory authority is to be vested in the Secretary of Agriculture. Every United States district court in the country, however, of which there are eighty-three, is given the right under certain conditions not only to declare a regulation promulgated by the secretary to be unconstitutional and void and to restrain its enforcement but to direct the secretary to take such action as the court deems proper in furtherance of justice. This seems to propose an innovation in our judicial system, vesting the district courts with authority to direct an executive officer as to what regulations he shall make. It is likely to prove an obstacle to the early enactment of legislation. Otherwise, the provisions of the bill relating to the procedure to be followed in the promulgation of regulations, borrowed in principle from the Copeland bill, seem to constitute a wholesome restraint on administrative legislation.

## Current Comment

### OSTEOPATHY OR MEDICINE

Before a select committee of the House of Lords a few years ago the British osteopaths sought to be included in the Medical Register but soon withdrew their request. According to their own witnesses, osteopathy is something independent of medicine which does not rely on the medical sciences for diagnosis and which has no need of any chemical agents in its treatment. In the United States, however, the osteopaths have more and more invaded the practice of medicine. There are now at least half a dozen states in which they are granted unrestricted licenses to practice medicine and surgery, and in many other states similar privileges are being demanded. Obviously, if osteopaths wish to practice medicine they should be willing to conform to the same educational requirements as are demanded of all others who are granted this privilege. Their schools should conform to the same standards. The refusal, however, of the osteopathic schools to permit inspection by the Council on Medical Education and Hospitals inevitably suggests that the claim that these schools teach medicine in all its branches would not bear investigation. Osteopathy is on the spot! Does it, or does it not, include medicine?

### SENATOR WAGNER'S RESOLUTION FOR THE STUDY OF MEDICAL CARE

On April 11, Senator Wagner of New York introduced into the Senate of the United States a resolution (S. Res. 265) which was referred to the Committee on Education and Labor. The resolution proposes to authorize the expenditure of \$50,000 to be used by a committee of three senators in making a general study, investigation and analysis of the adequacy and cost of medical care in relation to income and ability to pay, and also of ways and means to maintain and improve the health of the people of the United States. The resolution seems to be written right out of the proposals of the so-called Committee of 430 physicians.

Thus the resolution suggests that the committee in its investigation include but not limit itself to the following five points, which, for comparison, are placed parallel to the proposals of the Committee of 430.

#### SENATOR WAGNER'S FIVE POINTS

1 Expansion of federal aid to and cooperation with state and local public health services and the coordination of such services with the work of private institutions and groups.

2 Extension of governmental aid by cooperation of state and federal governments, in support of (a) adequate medical care for the medically indigent, (b) medical education, research, investigations and procedures for raising the standards of practice in preventive and curative medicine, and (c) private institutions and groups rendering hospital, laboratory, diagnostic and consultative services to the medically indigent.

3 Operation of existing public and private health insurance or group health systems, with particular reference to the manner in which they were instituted and are now functioning, the method of financing, the nature and extent of benefits, and the results achieved.

4 Utilization of professional experts in the planning, direction and execution of the foregoing measures.

5 Any other subject, matter, or thing adjudged by the committee to be relevant or germane to the foregoing subjects of inquiry.

#### PROPOSALS OF COMMITTEE OF 430

1 That the first necessary step toward the realization of the above principles is to minimize the risk of illness by prevention.

7 That public health services, federal, state and local should be extended by evolutionary processes.

2 That an immediate problem is provision of adequate medical care for the medically indigent, the cost to be met from public funds (local and/or state and/or federal).

3 That public funds should be made available for the support of medical education and for studies, investigations and procedures for raising the standards of medical practice. If this is not provided for, the provision of adequate medical care may prove impossible.

5 That public funds should be made available to hospitals that render service to the medically indigent and for laboratory and diagnostic and consultative service.

6 That in allocation of public funds, existing private institutions should be utilized to the largest possible extent and that they may receive support so long as their service is in consonance with the above principles.

8 That the investigation and planning for the measures proposed and their ultimate direction should be assigned to experts.

The Principles and Proposals of the Committee of 430 grew out of the report of the American Foundation Studies in Government. The resolution goes far beyond that report, however, in proposing to have the senators conduct a complete investigation of everything pertaining to medical education and medical service in a period of a few months, and with the expenditure of \$50,000. The Committee on the Costs of Medical Care spent about a million dollars over a term of five years and assembled a considerable staff for the purpose of its study. The Commission on Medical Education spent a small fortune over a period of three years. Five

National Health Survey employed 7,000 WPA workers and indulged in a tremendous expenditure to reach certain figures, which some statisticians consider inconclusive and doubtful. Right now the American Medical Association is using all the doctors of the country in an investigation of medical needs, with a view to having local determination as to how those needs may be met with the facilities available in each community.

#### HOW MANY TIMES IS ENOUGH?

In determining the fitness of candidates for medical licensure, the state boards for various reasons rely almost exclusively on written examinations. Now it is obvious that a written examination cannot measure skill. It is, at best, a weak instrument for the selection of those who may be safely granted the right to practice medicine. Surely the examining procedure is unnecessarily degraded when a candidate is permitted to repeat the examination after a dozen successive failures. Massachusetts licensed seventy-seven and New York 189 who had previous failures. In the former state two licensees had each failed thirteen times, four ten times, three nine times, two eight and two seven times each, a total of 123 failures among thirteen candidates. In these two states, 101 physicians were licensed after two or more failures. Is it not time for the people to wake up and put an end to this farce? If the purpose of our professional laws is to safeguard the public, they should be so amended as to impose a reasonable limit to the number of examinations a candidate may attempt.

#### NEW SEROLOGIC TESTS FOR SYPHILIS

The publications of the Committee on the Evaluation of Serologic Tests for Syphilis indicate that all too frequently both complement fixation and flocculation tests are carried out at a level of efficiency below that of which the tests are inherently capable. It is alarming that some commercial concerns are offering for sale to general practitioners relatively new and unestablished serologic test outfits containing antigen and other materials. The promoters claim that these methods may be carried out by the practitioner in his office, are suitable for rapid diagnostic work with whole blood and with spinal fluid and are sufficiently accurate to guide any physician in the treatment of his patients with syphilis. The fact that the antigens for these methods are crude or that they may deteriorate rapidly is not mentioned. Neither is it pointed out that the dye materials incorporated in the antigens are useless to a trained serologist and will be equally valueless to one not familiar with the interpretation of flocculation reactions. Warning is not given of the danger which is always present in serologic procedures carried out with whole blood or of the complete reversal which inactivation may induce. Nor is it admitted that these methods have had only a limited practical test in hands other than those of the originators. Furthermore, a most grievous omission is the failure to recommend the use of positive and negative control serum as guides in the interpretation of the test. The use of glassware, the concentration and pH of the salt

solution and many other factors requisite for trustworthy serologic results are omitted from the instructions. Thus, active commercial promoters may place in the hands of the individual physician everywhere a diagnostic function which is acceptable as efficient only when performed in laboratories adequately equipped and staffed by trained personnel. The claims for these techniques are based on inadequate experience and the procedures themselves are open to criticism on many technical grounds. The science of serology has not as yet progressed to a degree of simplicity at which the detection of syphilis may be placed on a basis comparable to the detection of albumin in the urine. It is difficult to see how any premature steps in this direction can do other than work to the detriment of the patient with syphilis.

### Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

#### ARIZONA

**Personal**—Dr. Bernard L. Wyatt, Tucson, has received a medal from the Comité National de Défense contre la Tuberculose in France in appreciation of his tuberculosis work during the World War.

**Society News**—A symposium on the diagnosis of bladder neck obstruction was presented before the Maricopa County Medical Society in February. The speakers were Drs. John W. Pennington, Hilary D. Ketcherside, Howard M. Purcell and Mihajlo Matanovitch. Dr. Merriwether L. Day spoke on "Carcinoma of the Prostate." The society was addressed at a special meeting in February by L. E. Detrick, research assistant, University of California, Los Angeles, on "Citri-Culture in Its Relation to Health."

#### ARKANSAS

**District Meetings**—At the semiannual meeting of the Second District Medical Society, at Batesville, April 11, the speakers were Drs. John N. Compton, Little Rock, on "Acute Infectious Diseases," and James E. Jones, Little Rock, "Diarrheas." Dr. Benjamin F. Turner, Memphis, Tenn., addressed a dinner session on "Medicine as a Vocation."—The Third District Medical Society was addressed at its semiannual meeting in Hazen April 7 by Drs. Daniel H. Autry, Little Rock, on "Coronary Artery Disease," William D. Mims, Memphis, "Practical Aspects of Infant Nutrition and Nutritional Disorders," Paul Mahoney, Little Rock, "X-Ray Diagnosis of Non-opaque Foreign Bodies in the Air Passages," John S. Agar, Little Rock, "Diagnostic Bronchoscopy," and Joshua Harley Harris, Memphis, "The High Spots of Sinus Trouble in the Practice of Medicine."

#### CALIFORNIA

**University News**—At the sixth clinical congress of the Alumni Association of the College of Medical Evangelists, Los Angeles, March 20, Drs. John E. Gregory spoke on "Diarrhea and Salt Metabolism," Dorrell G. Dickerson, "Surgical Treatment of Hypertension," William H. Olds, "Treatment of Acute Cholecystitis," and Donald C. Collins, "Indications for the Use of Papaverine Hydrochloride in Arterial Emboli."

**Carbon Monoxide in Motor Vehicles**—The industrial hygiene service of the state department of public health in cooperation with the state highway patrol has been conducting tests on motor vehicles to determine the amount of carbon monoxide to which drivers are exposed. Of 688 drivers tested in the preceding month according to the bulletin of the state department of health, February 26, the drivers of twenty-four vehicles or 3.47 per cent were found to have been exposed to dangerous concentrations of carbon monoxide while operating vehicles on the highway. The investigations are being



conducted by Dr John P Russell, Berkeley. A patrolman signals the driver to stop and the physician then accompanies him for a five minute run, testing the floor board of the truck with special instruments.

### COLORADO

**Annual Spring Clinics**—The Pueblo County Medical Society will present its fifth annual spring clinics in Pueblo April 29-30. The guest speakers on the program will include:

Dr Carl H Gellenthien Valmore N M, Diagnosis and Differential Diagnosis of Pulmonary Tuberculosis  
Dr Stuart W Harrington Rochester Minn, Diagnosis and Treatment of Various Types of Diaphragmatic Hernia  
Dr George Gill Richards Salt Lake City Hypothyroidism Short of Myxedema  
Dr Edward G Billings Denver Symptoms and Diagnosis in General Medicine

At the annual banquet Friday evening, James E Gheen, New York humorist, will be the guest.

### DISTRICT OF COLUMBIA

**Personal**—*Parents Magazine* recently awarded a medal to Dr Thomas Parran, surgeon general, U S Public Health Service, for outstanding service to children. The citation praised Dr Parran's work in control of venereal diseases. Dr Robert A Hare, Santa Barbara, Calif, has been appointed medical director of the Washington Sanatorium and Hospital, Takoma Park.

### FLORIDA

**New Director of Laboratories**—Dr James N Patterson, assistant professor of pathology, University of Cincinnati College of Medicine, Cincinnati, has been appointed director of laboratories of the state department of health, Jacksonville, to succeed the late Dr Paul Eaton. Dr Patterson graduated at the University of Cincinnati College of Medicine in 1929.

**Society News**—The Duval County Medical Society was addressed in Jacksonville March 1 by Drs Stanley Erwin on "Differential Diagnosis of Painless Jaundice" and Frederick J Waas, "Indications for Surgery in Gallbladder Disease." At a meeting of the Jackson County Medical Society in Marianna recently Dr Rudolph Bell, Thomasville, Ga, presented a paper on "When to Operate for Urinary Calculi."

### GEORGIA

**The Carter Memorial Laboratory**—The Henry R Carter Memorial Laboratory of the U S Public Health Service, Savannah, was formally dedicated February 8. The laboratory, designed for the study of malaria control, is named in honor



Carter Memorial Laboratory

of the late Dr Henry Rose Carter. Dr Thomas H D Griffiths, senior surgeon, U S Public Health Service, has been in charge of the laboratory since it was opened in 1937. Situated on a five acre tract owned by the city

of Savannah, the building was erected by city and WPA funds while the equipment, costing about \$20,000, was financed by the public health service. Dr Griffiths delivered the dedicatory address and the response was given by Dr Henry R Carter Jr, Birmingham, Ala, son of the late Dr Carter. The senior Dr Carter graduated as a civil engineer from the University of Virginia in 1873 and as a doctor of medicine from the University of Maryland School of Medicine in 1879. He entered the U S Public Health Service as assistant surgeon. For many years he was connected with work on yellow fever. He inaugurated a quarantine system in Cuba in 1899 and from 1904 to 1909 was director of hospitals in the Canal Zone. He was made assistant surgeon general in 1915. In 1914 Dr Carter's interest turned to the study of malaria and he is credited with conducting the first campaign against malaria in this country. He went to Central and South America as a member of the Rockefeller Foundation Yellow Fever Commission in 1917, was in charge of malaria work 1917-1918, was sanitary adviser to the Peruvian government 1920-1921 and was a member of the Yellow Fever Commission of the International Health Board from 1920 until his death in Washington, Sept 14, 1925, aged 73.

**Personal**—Dr Russell H Oppenheimer, dean and professor of medicine, Emory University School of Medicine, Atlanta, has been appointed acting superintendent of Grady Hospital, effective March 15. Dr Oppenheimer succeeds Mr John B Franklin, who resigned to accept a similar position at the

John D Archbold Memorial Hospital, Thomasville. Dr Harris M Branham, Brunswick, was recently guest of honor at a dinner to observe his completion of fifty years in the practice of medicine.

### IDAHO

**Personal**—Dr Samuel Weissross, Boise, assistant director of public health, has taken charge of industrial hygiene activities and of medical statistics. Drs Albert B Pappentagen, Orofino, and John Harry Einhouse, Moscow, addressed the North Idaho Medical Society, Lewiston, January 20 on back injuries and cutaneous diseases, respectively.

### ILLINOIS

**Central States Industrial Meeting**—The nineteenth annual meeting of the Central States Society of Industrial Medicine and Surgery will be held in Springfield May 1 in conjunction with the annual convention of the Illinois State Medical Society. Speakers will include:

Dr Clarence O Sappington Medicolegal Aspects of Occupational Diseases  
Dr James A Britton Recognition of Early Tuberculosis in Industry  
Dr William D McNally The Industrial Solvents  
Dr Cleveland J White Skin Infection in Industry with Special Reference to the Value of Patch Tests

One session, in conjunction with the surgical section of the state medical society, will be addressed by Drs Chester C Guy and Philip H Kreuscher on "Traumatic Lesions of the Spleen" and "Injuries of the Right Upper Abdominal Quadrant." All speakers are from Chicago.

### Chicago

**Courses on Obstetrics and Pediatrics**—A series of weekly courses on obstetrics and pediatrics will begin July 3 at the Research and Educational Hospital, University of Illinois College of Medicine, to continue through July and August. The state department of health is offering these courses in cooperation with the educational committee of the Illinois State Medical Society through the facilities of the University of Illinois. The courses in obstetrics will include outpatient dispensary clinics, special lectures, manikin course and home deliveries in the outpatient service, in addition there will be round table discussions. Ward walks and special lectures and service in the outpatient department will make up the courses in pediatrics. Dr Harold H Hill, associate in the department of obstetrics and gynecology, University of Illinois College of Medicine, and field consultant in maternal and child hygiene in the state department of public health, is in charge of arrangements.

**Society News**—Dr Erwin O Strassmann, Rochester, Minn, among others, addressed the Chicago Gynecological Society April 15 on "Technic and Results of Routine Fetal Electrocardiography During Pregnancy." The Chicago Pathological Society was addressed April 11, among others, by Drs George J Rukstinat, Chicago, and Charles G Weller, Aurora, Ill, on "Spindle Cell Sarcoma of the Prostate Gland." At a meeting of the Chicago Council of Medical Women April 13, Drs Helen Holt and Bertha A Klien spoke on "Role of Vitamins in Ophthalmology" and "Ophthalmoscopic Diagnosis and Differential Diagnosis of Hypertensive and Renal Disease" respectively. The Chicago Roentgen Society was addressed April 14, among others, by Kenneth Corrigan, Ph D, Harper Hospital, Detroit, on "Artificial Radioactivity" and Robert S Landauer, Ph D, "New Types of High Voltage Generators." Dr Philip S Carney, among others, addressed the Chicago Tuberculosis Society April 14 on "Fallacies in the Handling of Pneumococcus Cases." At a meeting of the Chicago Society of Allergy April 18 the speakers were Dr Samuel J Zakon and Samuel J Taub on "Inhalation of Horse Dander and House Dust as Etiologic Factors in Atopic Dermatitis" and Simon S Rubin and Theodore B Bernstein "Effect of Volume on Absorption of Antigen." Dr Wilhelm Drescher, Vienna, will address the Chicago Society of Internal Medicine April 25 on "The Cardiac Aneurysm Its Diagnosis and Prognosis."

### IOWA

**State Medical Meeting at Des Moines May 11-13**—The eighty-seventh annual session of the Iowa State Medical Society will be held in Des Moines May 11-13 at the Hotel Fort Des Moines under the presidency of Dr Edward M Myers, Boone. The guest speakers will include:

Dr Cyrus C Sturges Ann Arbor Mich Diseases Associated with Changes in the Red Blood Cells  
Dr Evans A Graham St Louis Thoracic Surgical Diseases  
Dr Otto Jason Dixon Kansas City Mo The General Practitioner's His Own Otologist  
Dr Edward N Cook Rochester Minn Urinary Antiseptics  
Dr Harry E Moeck Chicago Treatment of Craniocelebral Injuries

Sectional conferences will be held Wednesday and Thursday afternoons and a symposium on operative obstetrics will be held Friday morning with the following speakers: Drs Everett D Plass, William F Mengert, John H Randall, all of Iowa City, Lawrence E Kelley, Des Moines, Howard A Weis, Davenport, Otto N Glesne, Fort Dodge, and Roy E Crowder, Sioux City. Dr Kenneth L Johnston, Oskaloosa, will be toastmaster at the annual banquet Thursday evening. Rev. Alphonse M Schwitalla, S.J., dean, St. Louis University School of Medicine, will deliver an address Friday on medical economics. The State Society of Iowa Medical Women will hold its forty-first annual meeting May 11, the speakers will include Drs Irene A Koenke, Halstead, Kan, on goiter, Cora W Negus, Keswick, epidemic encephalitis, and Rosabell Butterfield, Indianola, alcohol in relation to the human system. The Woman's Auxiliary to the state medical society will meet May 11-12.

#### KANSAS

**Society News**—The Bourbon County Medical Society was addressed in Fort Scott February 14 by Drs Victor H Bergmann and Frank M Postlethwaite, both of Kansas City, Mo., on "Common Dysfunction of the Ovary in Endocrinology" and "Ambulatory Treatment of Diseases of the Rectum" respectively. Dr Carl O Rice, Minneapolis, discussed "The Injection Treatment of Hernia" before the Wyandotte County Medical Society, Kansas City, April 19.

**University News**—The Hixon Laboratory for Medical Research at the University of Kansas School of Medicine, Kansas City, has been completed at a cost of \$65,000. The laboratory is designed to encourage research work in all departments of the medical school and provides facilities for advanced study in the laboratory and clinical sciences. A short time ago a gift of \$45,000 was received by the university to be used for the erection of two additional floors to the building. An original gift of \$20,000 and a PWA grant financed the construction of the laboratory.

**Venereal Disease Programs**—The first of a series of two day graduate courses on venereal disease control to be given in all of the twelve councilor districts of the state opened in Hiawatha March 24-25 under the auspices of the state board of health and the Kansas Medical Society. Following is the schedule of the courses, which are being financed by the U.S. Public Health Service: Hays, April 4-5, Colby, April 6-7, Emporia, April 13-14, Salina, April 18-19, Hutchinson, April 25-26, Kinsley, May 2-3, Ottawa, May 23-24, Parsons, June 2-3, and Concordia, June 14-15. Dr Arthur D Gray, Topeka, is giving the lectures, which are open to all licensed physicians in the state.

#### LOUISIANA

**Society News**—The Eighth District Medical Society was addressed in Marksville March 16 by Drs Arthur A Caire Jr on "Obstetrical Anomalies as Handled in the Home," Idys M Gage, "Infections of the Hand," Julian Graubarth, "Summer Diarrhea in Children," and Stanford Chaille Jamison, "Diseases of the Heart." All are from New Orleans.

**Medicolegal Symposium**—The Orleans Parish Medical Society, New Orleans, sponsored a medicolegal symposium March 28 to consider "Relation of the Physician and Surgeon to the Administration of Justice." The following participated:

Hon Harold A Moise, judge, civil district court for Orleans Parish.  
Hon William J O'Hara, judge, criminal district court for Orleans Parish.  
Hon Archibald T Higgins, associate justice, supreme court of Louisiana.  
Hon George J Gulotta, assistant district attorney, Orleans Parish.  
St Clair Adams, Esquire, attorney for the Louisiana State Medical Society.

**State Medical Meeting in New Orleans** May 2-4—The Louisiana State Medical Society will hold its annual meeting in New Orleans May 2-4 under the presidency of Dr Charles M Horton Franklin. The guest speakers will be Drs James Barrett Brown, St. Louis, on "Care of Compound Injuries of the Face," Virgil S Counsellor, Rochester, Minn, "Gynecological Problems Occurring in the Reproductive Period" and Ray M Bileat, Oklahoma City, "Common Allergic Manifestations Encountered by the General Practitioner." Louisiana physicians included on the program are:

Dr George J Tiquino, New Orleans, "The Value of Broncho copy in Bronchiogenic Carcinoma."  
Dr Isidore Cohn, New Orleans, "Burns and Un solved Problems."  
Dr Stanford Chaille Jamison, New Orleans, "Pulmonary Atelectasis."  
Dr Arthur A Herold, Shreveport, "Inulin Allergy with Report of Severe Case and Successful Desensitization."  
Dr Stonewell J Phillips, Pineville, "Insulin and Metrazol Therapy in Dementia Praecox."

The section on public health and sanitation will present a symposium on venereal diseases with Drs James A Coleman, Edgar Burns and James K Howles, New Orleans, as speakers.

#### MAINE

**Society News**—Dr Roland B Moore, Portland, addressed the Androscoggin County Medical Society recently on obstetrics, speakers before the society March 17 included Drs Charles W Steele and Vincent H Beeaker, Lewiston, on coronary thrombosis and extrauterine pregnancy, respectively. Dr Oramel E Haney, Portland, discussed diagnosis and treatment of the more common skin diseases before the Portland Medical Club March 1. Among others, Dr William J O'Connor addressed the Kennebec County Medical Association in Augusta, March 17, on "Generalized Carcinomatosis of the Abdomen" and "Ghoma of the Spinal Cord." Dr Edwin H Place, Boston, discussed contagious diseases. Dr Henry R Viets, Boston, addressed the Cumberland County Medical Society April 22 on "Acute Lymphocytic Meningitis and Other Virus Diseases of the Nervous System."

#### MASSACHUSETTS

**University News**—Dr Henry A Christian gave the annual lecture of the Sir William Osler Society of Tufts College Medical Society, Boston, March 18, his subject was "The Fruition of the Clinician." Dr Reginald Fitz, lecturer on the history of medicine and university marshal, Harvard University Medical School, Boston, delivered the George W Gay Lecture on Medical Ethics at the university March 15, his paper was entitled "A Few of the Rules."

**Course in Occupational Dermatoses**—The Harvard School of Public Health, Boston, will conduct a course in occupational dermatoses in May. Lectures will be given on the clinical manifestations, etiologic factors, diagnosis, treatment, insurance and legal aspects. Clinics will be held at the Massachusetts General Hospital and various insurance companies. Visits to factories will be arranged so that students may study industrial processes and preventive measures. The number will be limited to ten. Further information may be obtained from the Harvard School of Public Health, 25 Shattuck Street, Boston.

#### MICHIGAN

**Physician Honored**—A bronze plaque showing the profile of Dr Colin D Munro, Jackson, was presented to W A Foote Memorial Hospital March 15 in his honor and to mark the dedication of the recently completed electric call and signal system at the institution. A member of the staff of the hospital, Dr Munro was president of the Jackson County Medical Society in 1913 and has served as chairman of the surgical section of the Michigan State Medical Society. He has practiced in Jackson since 1900.

**New Health Unit**—Dr Clarence D Barrett, East Lansing, director of the bureau of communicable diseases of the state department of health, has been placed in charge of a newly created full time health unit in Ingham County. The unit was to begin operation April 1. Dr Barrett has served as health officer of Wayne and Laramie counties and the city of Mansfield, Ohio. He has been associated with the Michigan department of health since March 1931. Dr Filip C Forsbeck, for six years assistant director of the bureau of communicable diseases of the state department of health, will succeed Dr Barrett as director.

**Society News**—Dr Cyril K Valade, among others, addressed the East Side Physicians Association, Detroit, March 17, on "Cutaneous Manifestations of the Eruptive Fevers." Dr Sumner L S Koch, Chicago, addressed the medical section of the Wayne County Medical Society, Detroit, March 14 on "Injuries of the Hand and Forearm." Dr Don W Gudakunst, state health officer, Lansing, discussed "The County Health Unit" at a meeting of the Washtenaw County Medical Society, Ann Arbor, March 8. Dr Oliver W Lohr, Saginaw, was recently chosen president-elect of the Michigan Pathological Society at a meeting in Ann Arbor and Dr Ruth C Wanstrom, Ann Arbor, was installed as president. Dr William L Brosius, Detroit, is the secretary.

#### MISSOURI

**Conservation of Eyesight**—The St. Louis County Medical Society and the county health department are sponsoring a program for conservation of eyesight. Public lectures are being given together with a showing of the talking sound film "The House of Vision." Members of the committee in charge of the program include Drs Clyde P Dyer, St. Louis, chairman, Alan D Calhoun, Leslie C Drews, Alonzo G Hobbs and Clarence L Hobbs, St. Louis, William H Bailey and Walter A Zeidler, Jennings.

**State Medical Meeting in Jefferson City**—The eighty-first annual meeting of the Missouri State Medical Association will be held in the House Chamber, Capitol Building, Jefferson City, May 2-4, under the presidency of Dr Dudley S Conley, Columbia. The speakers will include

Dr John H J Upham, Columbus Ohio, President American Medical Association Clinical Significance of Gastric Motility in the Human Subject

Dr George M Curtis, Columbus Ohio The Iodine Metabolism in Thyroid Disease

Dr Palmer Findley, Omaha Puerperal Sepsis

Dr Daniel L Sexton, St Louis Intermenstrual Pain

Dr Jacob G Probst, St Louis Diastase Test as an Aid in the Diagnosis of Perforated Peptic Ulcer

Dr John McLeod, Kansas City The Eyes in Congenital Syphilis

Dr Dan G Stine, Columbia Effect of Work on the Heart

Dr Orval R Withers, Kansas City Allergy Due to Molds

Dr Edward T Gibson, Kansas City, Traumatic Psychosis

Dr Radford F Pittam, Kansas City Carotid Denervation in Epilepsy

Dr Anthony B Dry, St Louis, Myasthenia Gravis Methods of Treatment, with Report of a Case

Dr Arthur Lloyd Stockwell, Kansas City, Factors in Determining the Management of Prostatic Enlargement

Dr August A Werner, St Louis Obesity and Its Treatment

A round table will be held by the maternal welfare committee at which Dr Findley will present a "Critique of Submitted Maternal Death Reports." Entertainment will include golf, skeet and bowling tournaments and a stag dinner Monday evening with the Cole County Medical Society as host.

## NEBRASKA

**Society News**—Judge E B Chappell, Lincoln, addressed the Lancaster County Medical Society, Lincoln, March 1, on "The Doctor in Court" and Dr Edna W Schrick on "Functional Dysmenorrhea."—At a meeting of the Madison Six County Medical Society in Norfolk March 1 the speakers, all of Omaha, were Drs Esley J Kirk, on nephritis, Harrison A Wigton, minor psychosis, Abraham S Rubnitz, pathology of blood, and Robert D Schrock, who gave a fracture demonstration.—Drs Harry H Everett and Harry E Flansburg, Lincoln, addressed the Fillmore and Saline County Medical Society, Crete, March 3, on pulmonary tuberculosis and pulmonary embolism respectively.—At a meeting of the Southwest Nebraska Medical Society in McCook March 17, the speakers, all of Denver, were Drs James E Russell Jr on "Jaundice in the Newborn", Clarence B Ingraham, "Embryonal Tumors of the Ovary," and William C Black, "Pathology Relative to Ovarian Embryonal Tumors."

## NEW YORK

**Report of Cancer Commission**—The commission appointed in 1937 to survey the prevalence of cancer in the state and facilities for treatment has made a report to the governor and the legislature and recommended continuation of the work for another year to permit completion of its studies. Chief of the commission's recommendations were reorganization and extension of the division of cancer control in the state department of health and changes in the public health law to make cancer a reportable disease. Among other points brought out in the report were that facilities for diagnosis of cancer are lacking in hospitals of less than 100 beds, facilities for roentgen treatment are insufficient to carry the minimum treatment load, radium is poorly distributed especially in the central area of the state, accommodations for terminal care of the cancer patient are inadequate for the indigent and upstate New York is suffering from a serious deficiency in treatment facilities. The commission recommended that, at least for the present, development of cancer control be away from centralization and in the direction of improved care in already existing local public and private hospitals. The division of cancer control is under the direction of Dr Burton T Simpson, director of the State Institute for the Study of Malignant Diseases, at Buffalo. Under the commission's recommendations an office would be set up for the director of the division with an adequate and competent staff and an initial appropriation of \$50,000 a year. The legislature appropriated \$15,000 for the commission's work during the coming year.

## New York City

**Harvey Lecture**—Fred C Koch, Ph D professor of biochemistry, University of Chicago, delivered the seventh Harvey Lecture of the current series at the New York Academy of Medicine April 21 on "The Chemistry and Biology of Male Sex Hormones."

**Annual Art Exhibit**—The eleventh annual exhibition of the New York Physicians' Art Club will be held at the New York Academy of Medicine, 2 East One Hundred and Third Street, May 9-21. Paintings and work in the graphic and

plastic arts by members of the medical profession will be shown. Dr Henry A Bancel is president and Dr James R Gudger secretary of the club.

**Personal**—David H McAlpin Pyle was recently reelected president of the United Hospital Fund for the fourth successive term.—Dr Jacob J Golub, executive director of the Hospital for Joint Diseases, has been appointed by Governor Lehman to the Saratoga Springs Authority.—The William H Nichols Medal for chemical research was presented to Dr Phoebus A Theodore Levene of the Rockefeller Institute for Medical Research by the New York Section of the American Chemical Society at a dinner March 11. Announcement of the award was made in THE JOURNAL, Dec 11, 1933, p 1994.—Dr Herman J Burman has been appointed director of the department of otolaryngology at the Harlem Hospital.

## NORTH CAROLINA

**Society News**—A symposium on roentgen therapy was presented before the Buncombe County Medical Society, Asheville, March 21, by Drs Gibbons W Murphy, who discussed treatment of infections, John D MacRae, endocrine disorder and Seba L Whitehead, dermatology.—At a meeting of the Catawba Valley Medical Society, Lincolnton, March 13, the speakers were Drs Abner M Cornwell, Lincolnton, on "Dietary tics of the Sigmoid Colon", Daniel N Stewart Jr Hickory, "The Clinical Value of Electroradiography," and Edward W Phifer, Morganton, "Surgical Problems."—Drs Ivan M Procter, Raleigh, and Coy C Carpenter, Wake Forest, addressed the Robeson County Medical Society March 3 on cancer of the breast.—Dr Ellis B Gray, Spartanburg S C, addressed the Rutherford County Medical Society in February on "Complications of Otitis Media."—Dr William B Dewar, Raleigh addressed the Johnston County Medical Society, Smithfield, in March on recent advances in medical therapy.

## OHIO

**New Executive Secretary in Toledo**—Mr George W Cooley, Toledo, has been appointed executive secretary of the Toledo Academy of Medicine to succeed Mr Henry C Gerber Jr who resigned to become executive secretary of the Michigan State Dental Society. Mr Cooley is a graduate of the school of business administration of the University of Cincinnati. Mr Gerber had been with the academy since 1930.

**Practitioners Honored**—The Morrow County Medical Society sponsored a luncheon in honor of Dr Frederick E Thompson, Marango, March 8 marking his completion of fifty years in practice.—Dr James Owen Howells Bridgeport was honored by the Belmont County Medical Society with a banquet in Bellaire, marking his seventy-fifth birthday February 17. Dr Howells described changes in medical practice during the past forty years, the society gave him a watch.

## PENNSYLVANIA

**Graduate Assembly**—At the third graduate assembly of the year at Geisinger Memorial Hospital, Danville, April 7, the following were guest speakers: Drs Russell M Wilder, Rochester, Minn, on "Diagnosis and Treatment of Addison's Disease", Louis H Clerf, Philadelphia, "Mechanism of the Production of Physical Signs in Diseases of the Lungs," and Roy W Scott, Cleveland, "Clinical Aspects of Arteriosclerosis." The assemblies are sponsored by the Montour County Medical Society.

## Philadelphia

**Dr Rowntree Receives Strittmatter Award**—Dr Leonard G Rowntree, director of the Philadelphia Institute for Medical Research at the Philadelphia General Hospital, received the annual Strittmatter Award a gold medal, of the Philadelphia County Medical Society at a meeting April 13 for his work on the thymus gland, cancer and arthritis. Dr Rowntree was appointed to the Philadelphia Institute in 1932. Previously he had been on the faculties of Johns Hopkins University, Baltimore, and the University of Minnesota, Minneapolis, and on the staff of the Mayo Clinic, Rochester, Minn. He was unable to attend the meeting because of illness. After the presentation the society heard a symposium on fever therapy given by Drs Frank H Krusen, Rochester, Minn, Joel J White, commander of the U S Naval Hospital at Philadelphia, Ferdinand Fetter and Truman G Schnabel. Dr Ferdinand Strittmatter, founder of the award, died the day after the presentation.

**Society News**—A symposium on sciatic pain was presented at a meeting of the Medical League of Philadelphia March 28, by Drs John B Roxby, Melvin W Thorner and Robert A Groff.—Speakers at a meeting of the Laennec Society

March 29 included Drs Samuel Bellet, on "Tuberculous Pericarditis" and Moses Behrend, Hodgkins Tumor of the Anterior Mediastinum and Anterior Chest Wall"—Dr John O. Bower addressed the Philadelphia Academy of Surgery April 4 on "When Should the Secondary Operation—Appendectomy—Be Performed Following Simple Drainage of an Appendiceal Abscess?" and Dr Robert H. Ivy on "Multiple Dentigerous Cysts, with Special Reference to Occurrence in Children of the Same Family"—Drs Arden Neil Lemon and Robert H. Ivy, among others, addressed the Philadelphia Laryngological Society April 5 on "Use of Undenatured Bacterial Antigen in Chronic Suppurative Sinusitis" and Tumors and Cysts of the Jaw" respectively—Dr Charles H. Best Toronto delivered a Hatfield Lecture of the College of Physicians of Philadelphia April 6 on "Heparin and Thrombosis"—Drs John V. Blady and Alfred F. Hocker, New York, among others, addressed the Philadelphia Roentgen Ray Society April 7 on "Sialography—Its Technic and Application in the Diagnosis of Diseases of the Parotid Gland"—Dr George S. Sprague White Plains, N. Y., among others, addressed the Philadelphia Psychiatric Society April 8 on "Proposed Classification of the Fields of Psychiatry."

## VIRGINIA

**McGuire Lectures and Centennial Symposium**—The Stuart McGuire Lectures delivered annually at the Medical College of Virginia, Richmond will be combined this year with the fourth and final symposium celebrating the college's centennial, April 28-30. The program is as follows:

- Dr. George R. Minot, Boston: Etiology and Treatment of Anemia Nutritional Deficiencies
- Dr. Oliver H. Perry, Pepper, Philadelphia: A Survey of the So Called Hemolytic Anemias
- Harvey E. Jordan, Ph.D., Charlottesville: Blood Formation in Birds with Special Reference to the Evidence for a Genetic Relation Between Lymphocytes and Erythrocytes
- Dr. Nathan Rosenthal, New York: Leukemoid Reactions in Various Diseases
- Dr. Alexis F. Hartmann, St. Louis: Some Clinical Studies of Subjects with Change in Their Acid Base Balance
- Dr. Edward D. Churchill, Boston: Principles of Surgical Treatment of Hyperparathyroidism
- Dr. Harvey B. Stone, Baltimore: Transplantation of Parathyroid Glands
- Dr. Walter Bauer, Boston: The Nature of Degenerative Joint Disease (Hypertrophic Arthritis)

## GENERAL

**New Health Council Officers**—Ira V. Hiscock, C.P.H., professor of public health, Yale University School of Medicine, New Haven, Conn., has been elected president of the National Health Council succeeding Dr. Donald B. Armstrong, New York. Dr. Charles Walter Clarke, New York, executive director of the American Social Hygiene Association, was chosen vice president and Miss Dorothy Deming, New York, general director of the National Organization for Public Health Nursing, secretary.

**Phillips Medal Awarded**—The John Phillips Memorial Medal of the American College of Physicians was awarded to Dr. Harry Goldblatt, professor of experimental pathology, Western Reserve University School of Medicine, Cleveland, at the annual session in New York, April 6, for his work on the production of experimental hypertension in animals. Dr. Goldblatt took his medical degree at McGill University Faculty of Medicine, Montreal, in 1916. He has been a member of the Western Reserve faculty since 1924.

**National Academy of Sciences**—The spring meeting of the National Academy of Sciences will be held in Washington, D. C., at the academy's building April 25-26. Papers of medical interest will include:

- Kobley D. Evans and Robert S. Harris, Cambridge, Mass.: Studies in Radium Poisoning: The Metabolic Effects of Ingested Radium in Rats
- Drs. Florence R. Sabin and Austin L. Joyner, New York: Cellular Reactions in Sensitization
- Dr. Eugene F. DuBois and James D. Hardy, New York: Relationship of Humidity to Evaporation of Sweat
- Harvey Fletcher, Ph.D., Flushing, N. Y.: The Mechanism of Hearing as Revealed Through Experiments on the Masking of Thermal Noise
- Dr. James Ewing, New York, will deliver a lecture Tuesday evening on "The Public and the Cancer Problem."

**Criteria for Accrediting of Nursing Schools**—At a recent meeting of the executive committee of the committee on accrediting of the National League for Nursing Education it was decided to spend several months in developing criteria for the accrediting of nursing schools. Through data collected the committee expects to define certain principles that will serve as a guide in the making of surveys in the future and in the accrediting of schools. Application of the criteria thus developed are to be tested in different types of schools in various geographic areas. It was pointed out that eligibility for accrediting will be based on the characteristics of the

school as a whole and that no school will be rejected for one or two deficiencies, provided the general quality of performance is acceptable. The committee listed among its aims: helping administrators to improve their schools, publication of a list of accredited schools to guide prospective students in their choice of schools of nursing and promoting interstate relationships in the professional registration of nurses.

**Meeting of Gastroenterologists**—The forty-first annual meeting of the American Gastro-Enterological Association will be held at the Hotel Claridge, Atlantic City, N. J., May 2-3. The speakers will include:

- Dr. Boris P. Babkin, Montreal, Canada: The Triple Mechanism of the Chemical Phase of Gastric Secretion
- Dr. Earl D. Bond, Philadelphia: Psychiatric Contributions to the Study of the Gastrointestinal System
- Dr. William C. MacCarty, Rochester, Minn.: Early Cancer of the Stomach and Its Clinical Significance
- Dr. Warren H. Cole, Chicago: The Etiological Relationship of Lesions of the Cystic Duct to Cholelithic Disease
- Dr. James B. Collip, Montreal, Canada: The Endocrines in Relation to the Gastrointestinal Tract

Dr. William R. Houston, Austin, Texas, will address the annual banquet on "Our Relations with the Orient" and Christopher Morley, New York, author "Change Without Notice."

## FOREIGN

**Society News**—An International Congress of Cosmobiology is being organized to be held in Nice, June 2-6, under the auspices of the Medical Society of Climatology and Hygiene of the Mediterranean Coast in cooperation with the International Association for the Study of Solar Radiation, Terrestrial and Cosmic. A detailed program will be sent on request to the president of the Mediterranean Coast medical society. Dr. Maurice Faure, 24 rue Verdi, Nice, France. Drs. William Bierman, New York, and Disraeli Kobak, Chicago, are physician members of an American committee established to support the congress. Information may be obtained from Miss Edna Minsky, 120 East Thirty-Seventh Street, New York, secretary of the committee.—The sixteenth International Red Cross Conference will be held in London in June. A special feature will be an observance of the seventy-fifth anniversary of the founding of the Red Cross movement.—The International Association of Thalassotherapy will hold its eighth international congress at Montpellier-Palavas, France, June 3-6. Subjects to be discussed are tuberculous peritonitis and meteorologic factors of the sea climate. For information apply to the organization committee, 6 rue Andre-Michel, Montpellier, France.

## Government Services

### Examination for Appointment in Navy Medical Corps

An examination of candidates for appointment as lieutenants (junior grade) in the Medical Corps of the U. S. Navy will be held at all naval hospitals in the United States and at the Naval Medical School, Washington, D. C., beginning May 16. Candidates must be between the ages of 21 and 32 at the time of appointment, graduates of class A medical schools and must have completed an internship of one year in a hospital accredited for interns by the American Medical Association and the American College of Surgeons. Information may be obtained from the Surgeon General, U. S. Navy, Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

### New Assistants to Surgeon General

Col. Roger Brooke, medical corps, commanding officer of Letterman General Hospital, San Francisco, has been appointed assistant to Dr. Charles R. Reynolds, surgeon general of the U. S. Army with the rank of brigadier general. Lieut. Col. Leigh Colc Fairbank, dental corps, General Dispensary, Washington, D. C., received a similar appointment and is the first dental officer ever to be appointed to the rank of brigadier general. As assistant to the surgeon general he will supervise the work of the army dentists.

## CORRECTION

**Effects of Alcohol**—In the article by Sydney Seltschick in THE JOURNAL, March 12, page 775, appeared an illustration unfortunately without due acknowledgment to the original artist. Dr. Seltschick informs us that by an oversight acknowledgment of the source of original publication of the illustration was omitted. The drawing from which the illustration was adapted appeared first on page 136 of *Alcohol and Man* (New York: Macmillan Company, 1932) in chapter VI, on the human toxicology of alcohol by Emil Bogert, Ph.D.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 25, 1938

#### Medical Research in England

In the annual report of the Medical Research Council for 1936-1937 the government is said to have provided an additional \$150,000 for research with special reference to chemotherapy. The success of sulfanilamide shows that chemotherapy can be useful in bacterial diseases, as it has been in protozoal and spirochetal diseases. So far the chief role of chemotherapy has been in tropical diseases of men and animals and it has depended on German science and industry almost entirely, the most notable exception being trypanosomiasis, which is of American origin. Yet several fundamental discoveries in chemotherapy have been made in England. In 1904 Thomas and Breinl first demonstrated the trypanocidal action of atoxyl, an organic arsenical compound. In 1907 Plimmer and Thomson discovered the trypanocidal action of antimony and potassium tartrate, and the value of this drug in bilharziasis was established by British workers. These discoveries initiated intensive research for compounds superior to the original ones, but this was carried out abroad. In Germany, where research in chemotherapy has been so successful, it has been carried out by manufacturing firms who employ hundreds of chemists and persevere for a decade or more before achieving a result susceptible of commercial development. British firms cannot do this without government support. The matter is more serious than one of prestige, for in the event of war the British Empire might find itself deprived of essential drugs. It is proposed to set up a central research laboratory with a staff giving its whole time to some laborious research and also to assign work to different academic centers. The scheme will differ from the German method in that it will not aim solely at financial success.

#### SULFANILAMIDE AND RELATED COMPOUNDS

The great value of sulfanilamide in puerperal sepsis was established at Queen Charlotte's Hospital, London, by Colebrooke of the council's staff and by others. The case mortality has been reduced to 5.5 per cent, against 22.7 per cent before the use of the drug. Another striking result is that after the treatment has been begun the infection has usually ceased to extend, so that there has been a great reduction in the incidence of peritonitis and a similar reduction in the development of palpable pelvic or pelvic-abdominal inflammatory masses. A similar reduction in the mortality of puerperal sepsis in London as a whole, from an average of 1.57 per thousand births to 0.75, has been observed. Benefit in other streptococcal infections has also been recorded, particularly in erysipelas and streptococcal meningitis. Animal experiments indicate that sulfanilamide also has curative effects in infections by meningococci, typhoid and other coliform bacteria, in dysentery and, somewhat less impressively, in infections by pneumococci and staphylococci. But it is too early yet to assess the value in human cases. In *B. coli* infections of the genito-urinary tract sulfanilamide bids fair to replace mandelic acid.

#### THE INFLUENZA VIRUS

The characteristic virus of influenza was obtained in throat washings from patients during the 1933 epidemic. A report to be published by the council points to the conclusion that in man influenza is a recognizable clinical entity, differing in symptoms and in epidemiologic character from other catarrhal infections of the respiratory tract. A means of differentiation by clinical examination alone would be an important advance. Dr. Stuart

Harris showed that, whereas the onset of epidemic influenza is usually sudden, the onset of febrile catarrh is often insidious, that in influenza constitutional symptoms predominate, while in febrile catarrh respiratory symptoms are the most common, that the cough in influenza is short and dry, while in febrile catarrh it is most often paroxysmal, irritating, painful and productive. These studies have clarified the problem but they do not provide the physician with a certain method of differential diagnosis by clinical examination alone. In the 1936-1937 epidemic, 600 soldiers were vaccinated against influenza by means of an inactivated virus but the results were inconclusive. However, the vaccination was shown to be harmless and it caused the appearance in the blood of antibodies to the virus.

#### Vitamin B Deficiency

At the Royal Society of Tropical Medicine and Hygiene a discussion took place on vitamin B deficiency. Prof. R. B. Haaves confined himself to acute beriberi in which the patients were desperately ill, vomiting, breathless and groaning with epigastric pain. They were often pulseless, with enlarged hearts and a pulse rate of from 120 to 130. The use of large doses of vitamin B produced a series of reactions which were unique and altered many current ideas. The vitamin must be given by injection and the effect of one injection lasted for many weeks. Clinical improvement occurred before any alteration was apparent in the blood pressure, which was usually noticed in the second hour or later. Then the diastolic pressure rose, in many cases to well above normal, and the peripheral arteries palpably stiffened. Pure vitamin B deficiency had no relation to any anemia.

Prof. A. R. Peters stated that the first symptom of vitamin B deficiency in animals was lack of appetite, which was followed by loss of weight. When the weight had fallen to 65 per cent of the maximum possible, terminal symptoms—decreased sugar tolerance and nervous symptoms—appeared. In pigeons, optic atrophies developed. Changes in temperature also occurred and there was usually lack of vision and bradycardia. Sometimes there was edema. Cure took place rapidly when the vitamin was given. The symptoms of vitamin B deficiency were mixed up with those of general inanition, but it was now possible to separate the two.

Dr. B. S. Platt said that there were substances normally present in human blood which bound bisulfate and were increased in fulminating beriberi. Pyruvic acid was one of these and normal levels were restored in ten or fifteen hours after intravenous administration of 5 mg. of vitamin B. He called attention to accentuating factors which might be more important in the development of the various clinical types of beriberi than the grade of vitamin B deficiency. These were fever, increased intake of carbohydrates and muscular effort. They affected metabolism and led to accumulation of pyruvic acid in the blood in states of vitamin B deficiency.

#### British Physicians and Their Austrian Colleagues

In a joint letter to the medical press Lord Horder, Sir Arthur Hurst, Prof. J. A. Ryle, Dr. Robert Hutchison, Dr. E. P. Poulton, Prof. W. H. Wynn and other leaders of the profession have expressed alarm at the possible fate of their colleagues in Austria. They state that there are in that country many revered physicians and surgeons who are likely to fall into disfavor with the national socialist government either on account of their medical or social views or on account of belonging to the Jewish race. Judging from what has happened in Germany, they are afraid that serious discrimination will be exercised against these physicians. The signatories beg their colleagues in all countries to watch the progress of events with the closest attention and to do all in their power, whether by public protest or by public or private assistance to stand by any members of our profession who may suffer hardship under the new regime.



### Radium Needles Recovered in Cinder Track After Eight Years

Physicians experimenting with a neon tube radium detector (named "the hen" because of the clucking sound produced) have discovered in the grounds of the Royal Victoria Infirmary, Newcastle-on-Tyne, eight milligram needles of radium which were lost eight years ago. They were left in used dressings by mistake, passed through the incinerator, and afterward became embedded with clinkers in a cinder track. A few days after the loss physicians searched the track, but with the comparatively crude instruments then available they recovered only a minute particle of radium and gave up hope of finding the rest. Recently the new instrument for detecting radium was purchased. It necessitates the use of head phones, with which the physicians have for some days been searching the track. The nearer the radium, the faster the clucking. The value of the radium recovered was \$600.

### PARIS

(From Our Regular Correspondent)

March 26, 1938

### Medical Examination of All Chauffeurs

For years the medical examination of chauffeurs of motor trucks and public conveyances has been obligatory in France. The extension of this requirement to conductors of all types of motor vehicles resulted in the appointment of a committee by the Academie de medecine, the leading medical organization of France. At the February 22 meeting the committee recommended the application of obligatory medical examination to every one who drives an automobile. Prof. Henri Claude raised the question as to whether such an obligatory medical examination should include only those who had already been granted a license without such an examination or whether only present and future applicants for licenses to drive passenger automobiles should be compelled to submit to a medical examination. Of 2,678,000 automobiles in use during 1937, less than a million were motor trucks and busses. In addition there were 510,000 motorcycles in daily use. This means that, if the proposed law is to be applied to all those who possess driving permits for passenger cars and motorcycles, it would be necessary to examine over two million individuals, a huge task for physicians to undertake. There were 464,923 applicants for permits to drive all types of motor vehicles during 1937. Professor Claude stated that only a small proportion of automobile accidents are due to any defects of a pathologic character which a medical examination of drivers of passenger vehicles could prevent. From reports of the state constabulary it appears that only 0.74 per cent of accidents are the result of physical disability on the part of drivers. The majority of accidents occur because the driver suffers from some nonclassifiable mental or nervous disturbance. These individuals have a tendency to lose their self control, are often of an excitable, unstable temperament and drive at excessively high speeds. It is very difficult for any medical examiner to detect such psychic disturbances. The only solution would be to oblige such an individual following an accident for which he is responsible, to be examined as to mental and physical defects with the object of refusing a license to drive in the future. Professor Claude did not question the necessity of a medical examination to detect cardiovascular lesions, disturbances of sight or hearing, alcoholism and intercurrent diseases. Prof. Georges Guillain, neurologist, said the fact that there was such a large number of drivers of passenger automobiles ought not to serve as an obstacle to their examination. A driving license should never be granted without a medical examination. He knew more than thirty persons who suffered from a major form of epilepsy but who had been granted driving licenses in spite of the fact that the authorities had been notified of the danger. He also knew persons suffering

from paraplegia, hemiplegia and mental defects who were driving automobiles. There is absolutely no reason why a medical examination of all chauffeurs should not be obligatory in France.

### Symposium on Chemotherapy in Gonorrhea

The February 11 meeting of the Societe de medecine de Paris was devoted to the discussion of the value of chemotherapy in the treatment of gonorrhea. The first paper was read by Professor Levaditi, who believes that the newer preparations do not act like ordinary antiseptics but undergo marked transformation in the body. The various drugs like sulfanilamide are of much less value in the chronic than in the acute forms of gonorrhea. When given alone, it is necessary to employ such large doses that systemic complications are likely to appear, hence these newer drugs can be regarded only as adjuvants to local methods, such as lavage. Dr. Marcel Pinard and his co-workers reported excellent results in acute cases, the percentage of cures in from three to four days being high. No other treatment was given in these acute cases. Dr. Sauphar disagreed with the preceding observations as to the efficacy of sulfanilamide and similar drugs in acute cases and said that we have still much to learn, wherefore the older methods should not be abandoned. It is unfortunate that the indiscriminate sale by druggists of these newer remedies permits many patients to try to treat a case of acute gonorrhea without proper medical supervision as to when a cure has taken place. This aspect of the question is an important one from the standpoint of spread of the infection. Dr. Lavenant stated that the best results are observed in subacute and chronic cases. However, large doses are apt to be followed by complications such as asthenia, anemia and leukopenia. Much smaller doses can be given if chemotherapy is combined with lavages. Dr. Marcel reported the cure of the majority of seventy acute cases of prolonged duration, with and without complications. He also called attention to the necessity of not allowing the indiscriminate use of these newer drugs, the doses recommended by pharmaceutical houses being usually much higher than safe or necessary. Dr. Barbellion said that a combination of local treatment and chemotherapy had given 85 per cent cures in 120 subacute and chronic cases. Systemic symptoms, in the form of a tired feeling, pallor and occasionally cyanosis, had been frequently noted. Chemotherapy should not be used indiscriminately for every case of gonorrhea. The dose of sulfanilamide and similar preparations should never exceed 3 Gm. a day. Every patient should be seen daily in order to control the action of these newer preparations adequately. The use of sulfanilamide in the various forms of tuberculosis was recommended by Dr. Marcou. It was efficacious only in cases of mixed infection, especially tuberculous diseases of the skin, bones and viscera.

### Suicide Resembling a Laboratory Experiment

At the February 14 meeting of the Societe medicale des hopitaux a case was reported by Profs. A. Lemierre and P. Ameuille which is unique. A foreign physician aged 29, who came to France six years ago to study bacteriology, was seen April 23, 1932, complaining of headache and general malaise of six days' duration. The temperature during this period varied from normal to 105 F. The hemoculture, blood count and physical examination were negative. The patient stated that at the age of 21 a diagnosis of pulmonary tuberculosis had been made but no bacilli had been found. An epidermal tuberculin test, however, was positive a few months before the onset of the present illness. There was a history of tuberculosis in the family. The case was puzzling until it was ascertained that the patient had been depressed and that in the effort to commit suicide had injected 2 cc. of an emulsion of living tubercle bacilli intravenously, the day the first symptoms of his present illness appeared. The emulsion contained about 1 mg. of tubercle bacilli per cubic millimeter. With this information to work on, a blood culture by the Lowenstein technique was made for tubercle



bailli but was negative. The same was true of two guinea pigs inoculated intraperitoneally with the patient's blood. No tubercle bacilli were found in the urine. The condition remained stationary from April 27 to May 19, the chief symptom being a feeling of fatigue. The x-ray examination of the chest May 19, thirty-two days after the inoculation, revealed multiple small shadows over both lungs, such as are seen in incipient cases of acute miliary pulmonary tuberculosis. There was an absence of any changes to be elicited on physical examination, and no tubercle bacilli were found in the scanty expectoration. Beginning about May 19 the temperature curve was of the remittent type, rising as high as 104 F toward evening. A second x-ray examination July 2 revealed far more advanced changes, characteristic of an acute miliary tuberculosis. Five days later, rigidity of the neck and a positive Kernig sign were noted. Death took place July 14, about three months after the inoculation. A necropsy was not made. Such a primary localization in the lungs and secondary localization in the meninges is frequently observed in acute miliary tuberculosis. The case is of interest because the question arises of reinfection in patients who present a positive epidermal tuberculin reaction.

### BERLIN

(From Our Regular Correspondent)

Feb 28, 1938

#### Treatment of Late Effects of Poliomyelitis

The Berlin Medical Society recently discussed the treatment of the late effects of acute anterior poliomyelitis after a lecture by Dr B. Kreuz. For about one and one-half years following the acute state one may anticipate spontaneous remission of the crippling. During this period exercise therapy should be begun to prevent atrophy of disuse in the still healthy musculature, underwater exercises are particularly beneficial. The goal of exercise therapy must be to have the patient ambulant in from six to eight weeks. If this is to be achieved, one should not hesitate to utilize reinforced partial molds for the limbs, and similar appliances. Care should be taken that the patient is subsequently freed from habituation to the appliance. Possible contractures are also removed during this one and one-half year period exercise therapy. Only at the end of this period should orthopedic surgical measures, if necessary, be introduced. Not a great deal may be expected of the latter. The muscle most utilized in plastic operations is the extensor hallucis longus. Plastic operations are undertaken after all possible deformities and contractures have been presumably corrected. For cases in which muscle plastic operations are not practicable, arthrodesis may bring about favorable results. Treatment of the upper arm by this method has occasionally been beneficial. Operations on the lower extremities should not be performed unless the surgeon feels confident that the fixation of the joint will not prevent the exercise of the patients' chosen occupation, if he has one. If his working capabilities are to be safeguarded, the crippled patient should receive careful and competent vocational guidance.

#### The Heritability of Metabolic Disorders

Dr A. Boeger of the First Medical Clinic of Munich University has published a study of the heritability of metabolic disorders. A fundamental consideration in dealing with this problem is the fact that disturbances of metabolism are quite frequently based on constitutional defects. The latter in turn are the result not only of inherited anomalies but of environmental influences as well. To be sure, one set of factors or the other may remain definitely in the background in certain cases. In a vast number of persons obesity is based on excessive intake of food and insufficient exercise; occupation may also be a factor, as among cooks and hotel keepers. Endogenous obesity, on the contrary, has its etiology in an autonomous diminution of metabolism. In such cases the person lays on

excessive fat despite a dietary that normally would not increase the body weight. Therefore, only obesity of the endogenous type is heritable. Inherited modifications of certain endocrine glands or of the mesencephalon are also capable of producing the condition. Among diabetic patients the number of those who have inherited the disorder fluctuates between 15 and 25 per cent. Congenital deficiency of Langerhans' cells will always be a telling factor in the manifestation of diabetes. Possibly exogenous factors in the etiology or liberation of diabetes are alcoholism, arteriosclerosis and overnourishment. The complete clinical picture of exophthalmic goiter is based on both a hereditary predisposition and environmental influences, among the latter fright, overwork, iodine and so on. Inherited disturbances of the sympathetic nervous system are often recognized early, whether the genetic character is dominant or recessive has not yet been determined. In cases of goiter, egregious familial diatheses marked by hyperergic conditions of various kinds are observable, a study of the relatives often reveals asthma, vasomotor rhinitis, migraine and urticaria. Besides, the importance of exogenous factors in the pathogenesis of gout are well known. Alkaptonuria and cystinuria are doubtless heritable anomalies of metabolism, but these conditions are not of any great practical significance since they usually run an asymptomatic course. It is a surprising fact that persons affected with the last named disorders often present a familial history of intermarriage.

#### The Heart in Cases of Pulmonary Embolism

Prof C. Kroetz and his co-workers reported their observations before the Hamburg Medical Society, stressing the demands made on the heart and coronary vessels by pulmonary embolism and pneumothorax. Accordingly there are no signs of a functional coronary insufficiency in pulmonary embolism. The hearts of twelve patients who had died of pulmonary embolism showed no fresh ischemic necrosis of the myocardium on serial section. If infarcts and cicatrices of infarction were present, they were plainly conditioned by a thrombotic occlusion of the vessel, which antedated the pulmonary embolism. Accordingly, the concept of a pulmocoronary reflex as the cause of precordial pain and danger to the heart in cases of pulmonary embolism is deprived of any anatomic basis. Electrocardiographic variations registered following pulmonary embolism cannot be interpreted as signs of functional coronary insufficiency. These newer concepts were verified by experiments on animals. In dogs no electrocardiographic coronary signs were demonstrable in connection with repeated pulmonary embolism, only with myocardial degeneration did alterations appear in the electrocardiogram. The coronary vessels become constricted following pulmonary embolism only for an initial period of a few seconds, which period coincides with the fall of blood pressure in the systemic circulation. The coronary arteries then become dilated and remain so from five to thirty minutes. Tests following enervation of the heart and the ligation of the lung show that coronary vasodilatation following pulmonary embolism should not be ascribed to a pulmocoronary reflex but to a nutritional reflex autochthonous to the heart. Precordial pain following pulmonary embolism differs essentially from anginal pain despite a clinical similarity and it is not based on hypoxemic-coronary factors. In pneumothorax a hyperfunction or hypofunction of the right side of the heart occurs in proportion to the decreased pulmonary expansion. The nature of this phenomenon was determined in animal experimentation from the state of pressure in the pulmonary artery and the product of amplitude and frequency in the systemic circulation. Blood perfusion of the coronary vessels exhibits the same contrasts; as a rule, hyperfunctioning of the right side of the heart corresponds to an increase in the perfusion of the right coronary artery. Here too no pulmocoronary reflexes of contraction are found; the cardiac blood perfusion is governed by nutritional demands.

## BUCHAREST

(From Our Regular Correspondent)

March 15, 1938

## The Revision of 3,000 Medical Diplomas

The ministry of health gained information about a criminal investigation by the public prosecutor. A sham lawyer, Manevici, procured medical and pharmaceutical "libera practica," the right to free medical practice, in a fraudulent way. In a workshop was found a heap of forged imitations of seals of several European faculties of medicine and of various magistrates, mayors and notaries. The public prosecutor has investigated the diplomas of all "professional men" whose right to free practice was obtained through the mediation of Manevici and this state of affairs made it necessary to undertake the revision of all libera practica rights obtained since 1919 by those who acquired their diplomas abroad.

These offenses were of formal importance, as they were apt to undermine the prestige of the medical and pharmaceutical professions. The ministry of health regarded it as a duty to require strict verification and to withdraw the libera practica right to practice medicine. As the ministry of health had not been provided with the necessary authority to execute these two procedures, it was necessary to provide authority for this through the legislature. This was done and the ministry of health was authorized to revise and verify the libera practica and other documents with which this right was obtained, also to suspend a libera practica obtained fraudulently. A committee of judges and physicians was appointed to do the work of revision.

At the time of the armistice in 1918, when Rumania increased its territory by the addition of Bessarabia, Transylvania, Bucovina and the Banate, all physicians in these new territories automatically acquired the right to practice medicine, and their diplomas were recognized as valid in the whole territory of Rumania. Now these diplomas are subject to revision that is, all foreign diplomas that were issued outside the prewar kingdom of Rumania and the present Rumania. All diplomas have to be sent to the commission in Bucharest. Doctors who acquired their diplomas prior to 1919 have to send their original diplomas, a copy of these and their citizenship papers. Those who obtained their diplomas abroad after 1919 have to produce their diploma, their birth certificate, citizenship papers, a certificate of morality, their matriculation certificate, the official gazette in which their libera practica was announced and a list of the subjects which they studied at the foreign university. The number of diplomas to be revised amounts to more than 3,000.

## Uterine Cancer in Rumania

At a recent surgical congress in Paris, Prof. Constantin Daniel and Dr. D. Mavrodin gave an account of cervical uterine cancer in Rumania. The basis of the report was their own experience and the observations of thirteen surgeons and one radiologist who answered a questionnaire sent to them. Their observations embraced 4,000 cases. Valuable data were supplied to them by the Bucharest Demographic Institute. Taking the data of the Bucharest mortality rate in 1936, it can be seen that, in general, cancer is not much increased. Out of 19,000,000 inhabitants of Rumania 6,121 (2,548 male and 3,573 female) died of cancer, this means a mortality rate of 32 per hundred thousand. Cancer of the cervix uteri caused death in 1,648 cases in 1934 and in 1,733 cases in 1936 corresponding to a general cancer mortality of 14.2 per cent in the 4,000 cases embraced in Daniel and Mavrodin's report. In relation to genital cancer cervical cancer occupies first place. At the gynecologic clinic of the Coltea hospital in Bucharest 85 per cent of the genital cancers were cervical cancers. According to the data of the Bucharest Demographic Institute of 1858 fatal genital cancers 1,733, or 90.32 per cent were uterine

cancers. The cervical cancers of the Bucharest gynecologic clinic were associated with uterine fibroma in 7.97 per cent of the cases. In Rumania, cervical cancer was most frequent in multiparas, according to the Bucharest Third Surgical Clinic the rate was 70 per cent. In the majority of cases the lesions were so severe that the patients were declared incurable. According to the Geneva classification among the cases at the Bucharest obstetric and gynecologic clinic 10.99 per cent were of the first degree, 27.14 per cent second degree and 51.54 per cent third and fourth degree. Cases at the provincial hospitals afforded a worse picture. The period between the first manifestation of the disease and the time the patient called on a doctor was generally between two and three years. In Rumania practitioners generally make no diagnosis without the microscope. The most frequent form at the Rumanian clinics is the vegetative form, which occurs in 49.33 per cent, ulcerative forms were found in 18 per cent, infiltrated forms in 6 per cent and endocervical hypertrophic in 25.33 per cent. The first place in treatment is occupied in Rumania by surgery. Radioactive procedures, owing to the shortage of radium, are not generally accessible. According to Rumanian surgeons, radical surgical treatment is indicated in all first and second degree cases of cervical cancer. They almost without exception remove the tumor by the abdominal route. According to the questionnaire sent out by Daniel and Mavrodin the majority of our surgeons prefer to do the Wertheim total hysterectomy. The operative mortality varied between 4.83 and 8.82 per cent. Though seldom done in Rumania the removal of the tumor through the vagina gave good immediate results. Radium is reserved for third and fourth degree cases, for patients whose conditions contraindicate surgical intervention and in cases of recurrence. In private practice no radium treatment is given yet in Rumania.

## CAMPAIGN AGAINST CERVICAL CANCER

In Rumania as yet there is no definite anticancer campaign in operation, although many efforts have been made in the interest of diminishing its ravages. Public lectures are being given on the early recognition of cancer and graduate courses are arranged for doctors, lectures are given to doctors on the importance of periodic examination of bleeding patients, on the necessity of biopsy, on the surgical treatment of localized cervical cancer and on the advantages of irradiations in inoperable cancer. Every year a special "cancer week" is arranged. The Societatea Anatomica Pentru Studiul Cancerului brought out a film with the title "Cancerul," which was shown in connection with the lectures. Articles appear in the lay journals from time to time pointing out the dangers of cancer. As regards a scientific campaign against cancer, an organization was formed under the leadership of Professor Daniel in 1929. Another recently established organization is the Societatea Romana de Cancerologie.

## Marriages

HERBERT DE GRANGE WOLFF JR, Alexandria, Va., to Miss Anne Henderson Froehling of Richmond, February 12.

CHARLES R. WILLIAMS, Birmingham, Ala., to Miss Alice Virginia Futral in Wadley, Ga., in February.

WILLIAM T. WARD, Raleigh, N. C., to Mrs. Mary Powell Ward of Franklinton in December 1937.

HOWARD L. VAN WINKLE to Miss Wilma Willimack, both of Cedar Rapids, Iowa, March 3.

RICHARD B. RAY to Miss Carolyn Haldene Fuller, both of Durham, N. C., February 12.

JAY E. HOLLAHAN, Mason City, Iowa, to Miss Beulah Sanders of Creston, March 1.

JESSE B. WILDEMBERG to Miss Jean Miller, both of New York, February 12.

LEON RAYO, Spinal, Colo., to Miss Lillian Karsh, Oct. 3, 1937.

## Deaths

**Courtland Yardley White** \* Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1895, associate professor of bacteriology at the Medical Chirurgical College, Graduate School of Medicine, University of Pennsylvania, member of the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists, instructor in clinical medicine at his alma mater, 1899-1904, lecturer and demonstrator in morbid anatomy, veterinary department, University of Pennsylvania, 1899-1910, director of the pathologic laboratories of the Episcopal Hospital, 1908-1938, director, City of Philadelphia laboratory of bacteriology, 1910-1938, formerly on the staffs of the Children's, St Joseph's and Jewish hospitals, aged 64, died suddenly, January 14, of coronary sclerosis

**Henry Lindsay Sanford** \* Cleveland, Harvard University Medical School, Boston, 1900, assistant clinical professor of genito-urinary surgery, Western Reserve University School of Medicine, secretary and past president of the American Association of Genito-Urinary Surgeons, member and past president of the American Urological Association, fellow of the American College of Surgeons, past president of the Cleveland Academy of Medicine, in 1914 member of the city board of health, served during the World War, on the staffs of the Lakeside Hospital, Cleveland City Hospital and St Alexis Hospital, aged 64, died, February 5, in the University Hospital of coronary occlusion and bronchiopneumonia

**James Alfred Spalding**, Portland, Maine, Harvard University Medical School, Boston, 1870, member and past president of the Maine Medical Association, past president of the Cumberland County Medical Society, member of the American Academy of Ophthalmology and Oto-Laryngology and the American Ophthalmological Society, fellow of the American College of Surgeons, on the staff of the Maine General Hospital, editor of the *Maine Medical Journal*, from May 1933 to September 1935, author of "Life of Dr Lyman Spalding" and "Maine Physicians of 1820", aged 91, died, February 27

**Frederick Warren Smith** \* Philadelphia, Hahnemann Medical College and Hospital, Philadelphia, 1903, clinical professor of laryngology and rhinology at his alma mater, fellow of the American College of Surgeons, served during the World War, on the staffs of the J Lewis Crozer Home for Incurables and Homeopathic Hospital, Chester, West Chester (Pa) Homeopathic Hospital, Wilmington (Del) Homeopathic Hospital and the Abington (Pa) Memorial Hospital, aged 56, died, February 20, in the Hahnemann Hospital

**Francis Cruger Edgerton** \* New York, Columbia University College of Physicians and Surgeons, New York, 1898, fellow of the American College of Surgeons, member of the American Association of Genito-Urinary Surgeons, formerly clinical instructor in surgery, department of urology, Cornell University Medical College, New York, on the staffs of St Elizabeth's and St Francis, New York and St Mary's Hospital, Hoboken, N J, aged 64, died, February 19, in the Doctors Hospital, of pneumonia

**Paul Eugene Bowers**, Los Angeles State College of Physicians and Surgeons, Indianapolis, 1907, member of the California Medical Association and the American Psychiatric Association, served during the World War, at one time superintendent of the Indiana Hospital for Insane Criminals, Michigan City, author of "Clinical Studies in the Relationship of Insanity to Crime" and "Manual of Psychiatry for the Medical Student and General Practitioner", aged 51, died, February 15, of cardiorenal disease

**Charles Gluck**, New York, Long Island College Hospital, Brooklyn, 1908, served during the World War, at various times on the staffs of the Mount Sinai Hospital, Sydenham Hospital, St Luke's Hospital and Harlem Eye and Ear Hospital, New York, owner of the Passaic (N J) Eye, Ear, Nose and Throat Private Hospital, aged 52, died, February 15 in the Flower-Fifth Avenue Hospital, of septicemia, as the result of pricking his finger while operating

**Frank Bacon Hancock**, Philadelphia University of Pennsylvania Department of Medicine Philadelphia, 1897, member of the Medical Society of the State of Pennsylvania, veteran of the Spanish-American War, for many years police and fire surgeon, aged 65, died, January 18, of pulmonary tuberculosis and arthritis deformans

**David Aaron Goodman**, Old Forge Pa Jefferson Medical College of Philadelphia, 1915, member of the Medical Society

of the State of Pennsylvania, president of the school board formerly deputy coroner, served during the World War, on the staff of the Taylor (Pa) Hospital, aged 46, died, January 5, of coronary occlusion

**Alexander Berkley Raff**, Chicago, Jefferson Medical College of Philadelphia, 1905, for many years member of the board of health, at one time acting medical director of the Sanatorium of the Jewish Consumptives' Relief Society, Springfield, Colo, aged 56, died, February 11, in the Michael Reese Hospital, of pneumonia

**Harry Burton Fuller** \* Chicago, Rush Medical College, Chicago, 1913, member of the American Academy of Ophthalmology and Oto-Laryngology, fellow of the American College of Surgeons, aged 51, on the staff of the Chicago Eye, Ear, Nose and Throat Hospital, where he died, February 4, of coronary thrombosis

**George Wallace Wilcox**, Hamilton, N Y, New York Homeopathic Medical College and Hospital, New York, 1899, member of the Medical Society of the State of New York, served during the World War, aged 71, died, January 27, in the Utica (N Y) Memorial Hospital, of coronary thrombosis

**Raymond Brooke Essick**, Murphysboro, Ill, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908, member of the Illinois State Medical Society, aged 52, on the staff of St Andrew's Hospital, where he died, February 16, of cerebral hemorrhage

**Andrew Joseph Ware**, Greenville, Miss, Memphis (Tenn) Hospital Medical College, 1903, formerly city and county health officer, at one time superintendent of the Matty Hersee Hospital, Meridian, aged 54, died, January 30, in a hospital at Jackson, of chronic nephritis and hypertension

**Arthur Parsons**, Geneseo, Ill, College of Physicians and Surgeons, Keokuk, Iowa, 1892, member of the Illinois State Medical Society, served during the World War, formerly mayor and member and president of the high school board of education, aged 69, died, January 9

**Ellerslie Wallace Richards** \* Easton, Pa, University of Pennsylvania Department of Medicine, Philadelphia, 1899, served during the World War, for many years school physician, on the staff of the Easton Hospital, aged 65, died, January 6, of carcinoma of the sigmoid

**John Houston Ball**, Abilene, Texas, Memphis (Tenn) Hospital Medical College, 1892, past president and secretary of the Stephens County Medical Society, for several years county health officer, aged 70, died, January 19, in the Hendrick Memorial Hospital, of heart disease

**Adolph Bernard Quasser**, Jacksonville, Fla, Harvard University Medical School Boston, 1922, member of the Florida Medical Association formerly on the staffs of the Mercy and Portsmouth General Hospital, Portsmouth, Ohio, aged 41, died, February 3, of brain tumor

**Charles Roland** \* Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1898, member of the Associated Anesthetists of the United States and Canada, formerly health officer of Reading, aged 62, died, January 17, of carcinoma of the tongue

**Henry E Beebe**, Sidney, Ohio, Homeopathic Hospital College, Cleveland, 1873, for many years a member and at one time president of the state medical board fellow of the American College of Surgeons, aged 88, died, February 12, of cardiovascular disease

**Albert J Pounds**, Delaware, Ohio, Columbus Medical College, 1881, formerly city health commissioner, member of the county board of health president of the board of education and county coroner, aged 79, died, January 12, of carcinoma of the stomach and intestine

**Francis Edward Heid** \* Brockway, Pa, University of Maryland School of Medicine, Baltimore, 1913, past president of the Jefferson County Medical Society, on the staff of the Maple Avenue Hospital, DuBois, aged 49, died, January 27, of heart disease

**Charles Lyon Fullmer**, Renovo, Pa, Jefferson Medical College of Philadelphia 1883, member of the Medical Society of the State of Pennsylvania, at one time county coroner for many years school physician aged 78, died, January 20, of myocarditis

**Henri Romeo Vallee**, Montreal Que, Canada, School of Medicine and Surgery of Montreal, 1918, aged 42, on the staffs of the Lachine General Hospital St Joseph Lachine and the Hopital Ste Jeanne D Arc, where he died, January 11

**William Stewart Russell** \* Philadelphia, University of Pennsylvania Department of Medicine Philadelphia 1903, on the staff of the Pennsylvania Hospital aged 62, died, January 20, in the Philadelphia General Hospital, of meningo-encephalitis

**John H Sampson**, St Joseph, Mo , Missouri Medical College, St Louis, 1881, member of the Missouri State Medical Association, at one time professor of pediatrics at the Emsworth Medical College, aged 81, died, February 10, of pneumonia

**Karle Henry Granger**, Weymouth Mass , Dartmouth Medical School, Hanover, N H , 1893, member of the Massachusetts Medical Society, school physician, aged 69, died, Dec 28, 1937, in the Baker Memorial Hospital, Boston

**Edmund Henry Lewis**, Gordonsville, Va , Jefferson Medical College of Philadelphia, 1887, member of the Medical Society of Virginia, aged 76, died, February 4, in the University Hospital, Charlottesville, of pneumonia

**William Willis Wray**, Louisa, Ky , Baltimore Medical College, 1897, member of the Kentucky State Medical Association, aged 67, died, January 12 in the General Hospital of uremia and carcinoma of the bladder

**Thomas C Rummel**, Tacoma Wash , Western Reserve University Medical Department, Cleveland, 1891, member of the Washington State Medical Association, aged 78, died, February 14, of cerebral hemorrhage

**William Peyton Beane**, Keystone, W Va , University of Tennessee College of Medicine, Memphis, 1912, member of the West Virginia State Medical Association, aged 59, died, February 16, of cerebral hemorrhage

**Lyndon S Smith** Ⓢ Monongah, W Va , Baltimore Medical College, 1901, physician for the Consolidated Coal Company at Monongah, aged 65, died, January 31, in the Cook Hospital, Fairmont, of cerebral hemorrhage

**Grant J A New**, Pittsburgh, Western Pennsylvania Medical College, Pittsburgh, 1895, member of the Medical Society of the State of Pennsylvania, aged 68, died, January 11, of myocarditis and chronic nephritis

**Elbert Bells Dewey**, Chicago, Chicago Medical School, 1921, member of the Illinois State Medical Society, on the staff of the West Side Hospital, aged 60, died, February 2, in Lake Bluff, Ill , of heart disease

**Leigh Harrison Hunt**, New York, University of the City of New York Medical Department New York, 1880, noted etcher, art lecturer and critic, aged 79, died, Dec 16, 1937, in the Mount Sinai Hospital

**Charles Pottberg**, Philadelphia, Jefferson Medical College of Philadelphia, 1883, member of the Medical Society of the State of Pennsylvania, aged 81, died, January 9, of chronic myocarditis and endocarditis

**Alice Maude Smith**, Tacoma, Wash , Northwestern University Woman's Medical School, Chicago, 1896, member of the Washington State Medical Association, aged 71, died, January 11, of epigastric hernia

**Joshuaway Ilar Glover**, Union City, Tenn , Kentucky University Medical Department, Louisville, 1906, member of the Tennessee State Medical Association, aged 57, died, February 14, of chronic nephritis

**John Preston Carver**, Simsbury, Conn , Albany (N Y) Medical College, 1896, member of the Connecticut State Medical Society, aged 66, died, February 4, of acute toxic myocarditis with complications

**Warren Rice Flanagan**, Continental, Ohio, Ohio State University College of Medicine, Columbus, 1935, member of the Ohio State Medical Association, aged 34, died, February 11, in an automobile accident

**Owen Joseph McGovern** Ⓢ Reading Pa , University of Pennsylvania School of Medicine, Philadelphia, 1917, aged 49, on the staff of St Joseph's Hospital, where he died, January 24, of rheumatic heart disease

**John Frank Axtelle**, Wallingford, Conn , Long Island College Hospital, Brooklyn, 1878, member of the Connecticut State Medical Society, aged 83, died, February 8, of arteriosclerosis and hypostatic pneumonia

**Edwin S Huntsman**, Hulmeville, Pa , Jefferson Medical College of Philadelphia 1886, member of the Medical Society of the State of Pennsylvania, aged 75, died, January 5, of carcinoma of the prostate

**Robert Lewis Wilson**, Jeannette, Pa , Medico Chirurgical College of Philadelphia 1904, formerly on the staff of the Westmoreland Hospital, Greensburg, aged 59, died, January 21, of coronary occlusion

**Brent Charles Tarbell**, Naco Ariz., Kansas City (Mo) Medical College, 1901, acting assistant surgeon U S Public Health Service, aged 60, died, January 27, in the Copper Queen Hospital Bisbee

**William Thomas Arnold**, Hemphill, Texas, Dallas Medical College, 1904, member of the State Medical Association of Texas, member of the board of education, aged 57, died, Dec 23, 1937, of tularemia

**John Lawrence Montgomery** Ⓢ Los Angeles, Bennett Medical College, Chicago, 1911, aged 47, died, January 24, in the Los Angeles General Hospital, of traumatic rupture of an esophageal varicosity

**Robert O'Neal Boyd**, Clover, S C , Medical College of the State of South Carolina, Charleston, 1931, aged 32, died, February 3, at a sanatorium in Charlotte, N C , of pneumonia following influenza

**John Waring Lewis**, Keo, Ark , Tulane University of Louisiana Medical Department, New Orleans, 1904, aged 58, died, February 9, in a hospital at Little Rock, of pneumonia following influenza

**Daniel Sartar Johnson Jr**, Braxton, Miss , Memphis (Tenn) Hospital Medical College, 1912, served during the World War, formerly county health officer, aged 60, died in December 1937

**William Bruce Payton**, Riverside, Calif , University of Michigan Department of Medicine and Surgery, Ann Arbor, 1881, aged 81, died, January 7, of coronary thrombosis and arteriosclerosis

**Higgerson Matherson Sale**, Washington Ga , University of Georgia Medical Department, Augusta, 1900, member of the Medical Association of Georgia, aged 67, died, February 1, of pyelonephritis

**George Martin Guthrie**, Inverness, Ala , Medical College of Alabama, Mobile, 1900, member of the Medical Association of the State of Alabama, aged 62, died, January 9, of influenza and pneumonia

**Newman W Nanney**, Fulton, Miss , Memphis (Tenn) Hospital Medical College, 1904, member of the Mississippi State Medical Association, county health officer, aged 57, died, Dec 7, 1937

**James Edwin Stuart**, Livingston, Mont , Willamette University Medical Department, Salem, 1909, member of the Medical Association of Montana, aged 72, died, January 4, of myocarditis

**Walter Frederic Pine** Ⓢ Dodge City, Kan , University Medical College of Kansas City, Mo, 1908, formerly on the staff of St Anthony Hospital, aged 67, died, January 24, of appendicitis

**Thompson Anderson**, Denver, University of Nashville (Tenn) Medical Department, 1901, member of the Colorado State Medical Society, aged 60, died, February 9, of lobar pneumonia

**John R Wright**, Louisville, Ky , University of the South Medical Department, Sevanee, Tenn, 1901, veteran of the Spanish-American War, aged 68, died, Dec 19, 1937, in Fairhope, Ala

**Enoch N Gentry**, Sturgeon, Mo , University of Louisville (Ky) Medical Department, 1879, member of the Missouri State Medical Association, aged 83, died, February 13, of arteriosclerosis

**Henry James Goubeaud**, Brooklyn, Long Island College Hospital, Brooklyn, 1890, member of the Medical Society of the State of New York, aged 68, died, February 1, of pneumonia

**Thomas James Lawson**, Ainsworth, Ncb , Medical Department of Omaha University, 1896, aged 75, died, January 26, of acute cholecystitis, thrombophlebitis and postoperative parotitis

**John Elmer Wilson**, Butler Ky , National Normal University College of Medicine, Lebanon Ohio, 1896, Cincinnati College of Medicine and Surgery, 1897, aged 72, died, Dec 28, 1937

**Ralph M Rusco**, Chicago, Hahnemann Medical College and Hospital Chicago, 1901, aged 58, died, February 3, in St Bernard's Hospital, of intestinal obstruction and myocarditis

**Wilbur W Warner**, Bogalusa, La , Kentucky School of Medicine, Louisville 1894, member of the Louisiana State Medical Society, aged 68, died January 28 of coronary thrombosis

**John Hughes Rothwell** Ⓢ Liberty Mo , Bellevue Hospital Medical College, New York, 1883, aged 79, died, January 6, of cerebral embolism, carcinoma of the liver and arteriosclerosis

**Oscar Vananda Guthrie**, County Line Okla , College of Physicians and Surgeons, Little Rock, 1910, aged 51, was killed February 7, near Cross Roads in an automobile accident

**Frank Joseph Sexton**, Brookline, Mass , University of Pennsylvania Department of Medicine Philadelphia, 1898, aged 65, died January 4, of cerebral embolus and arteriosclerosis

Charles Mathew Gower, Trenton, Ky., University of Tennessee Medical Department, Nashville, 1895, veteran of the Spanish-American and World wars, aged 67, died, January 2

Vanderhoef Morgan Disbrow, Lakewood, N. J., University of Vermont College of Medicine, Burlington, 1880, aged 80, died, January 6, of myocarditis and arteriosclerosis

Belle C. Buchanan Burgess, Chicago, Pulte Medical College, Cincinnati, 1883, Woman's Medical College of Cincinnati, 1894, aged 84, died, January 30, of cerebral hemorrhage

Leonidas Erskine Rupert, Florence, Colo., University of Louisville (Ky.) Medical Department, 1893, aged 66, died, February 16, in Denver of myocarditis and tuberculosis

Zachary Taylor, West Jefferson, Ohio, Starling Medical College, Columbus, 1873, also a druggist, aged 88, died, January 17, of lobar pneumonia and cerebral hemorrhage

Lawrence M. Hensel, Richmond, Calif., Northwestern Medical College, St. Joseph, Mo., 1885, aged 85, died, January 30, in a hospital at Oakland, of bronchopneumonia

Samuel E. Bamford, Clio, Iowa, College of Physicians and Surgeons, Keokuk, 1889, aged 78, died, January 15, in St. Joseph's Mercy Hospital, Centerville, of pneumonia

Thomas O. Helm, Bowling Green, Ky., University of Louisville Medical Department, 1885, aged 78, died, Dec. 17, 1937, in the Norton Memorial Hospital, Louisville

George Otto Henry Buchner, Bakersfield, Calif., Cooper Medical College, San Francisco, 1907, member of the California Medical Association, aged 57, died, Dec. 12, 1937

James Francis Edward Colgan, Philadelphia, Jefferson Medical College of Philadelphia, 1892, aged 74, died, January 8, in St. Mary's Hospital, of cerebral hemorrhage

Matilda J. Gallagher, Washington, D. C., National University Medical Department, Washington, 1892, aged 75, died, February 8, of myocarditis and chronic nephritis

Halbert Joel Burdick, Cleveland Heights, Ohio, University of the City of New York Medical Department, New York, 1888, aged 73, died, January 15, of pneumonia

W. W. Kerr, Volga, W. Va., Medical College of Ohio, Cincinnati, 1892, member of the West Virginia State Medical Association, aged 72, died in December, 1937

William Thomas Buck, Beech Bluff, Tenn., Vanderbilt University School of Medicine, Nashville, 1901, served during the World War, aged 64, died, Dec. 14, 1937

Alexander C. Rinkenberger, Benton Harbor, Mich., Chicago Homeopathic Medical College, 1888, aged 68, died suddenly, Nov. 8, 1937, in the Mercy Hospital

Robert Samuel Lindsay, Old Forge, N. Y., Albany Medical College, 1890, formerly local health officer, aged 76, died, January 26, of diabetes mellitus and nephritis

Stafford Rambo, Bluffton, Ga., University of Maryland School of Medicine, Baltimore, 1891, also a dentist, aged 71, died, Dec. 25, 1937, of coronary thrombosis

Duncan Donald Campbell, Stamford, N. Y., Victoria University Medical Department, Coburg, Ont., Canada, 1884, aged 73, died January 13, of coronary occlusion

Charles Austin French, Boston College of Physicians and Surgeons, Boston, 1893, aged 75, died, January 17, of cerebral hemorrhage and chronic myocarditis

Edward M. Parker, Emporia, Va., Maryland Medical College, Baltimore, 1900, member of the Medical Society of Virginia, aged 79, died, Dec. 16, 1937

Margaret Kennedy Sullivan, Haddonfield, N. J., Woman's Medical College of Pennsylvania, Philadelphia, 1895, aged 68, died, in January, of pneumonia

Alexander Berry Childs, Eunice, La., Tulane University of Louisiana Medical Department, New Orleans, 1907, aged 57, died in January of pneumonia

Charles Cheyne Aitken, Des Moines, Iowa, Halifax Medical College, Dalhousie, N. S., Canada, 1881, aged 81, died, January 8, of aortic aneurysm

Charles Sumner Fremont Whitcomb, Contoocook, N. H., Medical School of Maine, Portland, 1895, aged 72, died, January 2, of cerebral hemorrhage

George W. Wiley, Norman, Okla., Fort Worth School of Medicine, Medical Department of Fort Worth University, 1900, aged 63, died, Dec. 31, 1937

John Carlos Da Silva Pitta, New Bedford, Mass., Universidade de Lisboa Faculdade de Medicina, Portugal, 1884, aged 77, died Dec. 10, 1937

Edwin Harrison Moore, Pittsburgh Eclectic Medical Institute Cincinnati, 1896, aged 76, died, January 31, of influenza and bronchopneumonia

Elmer Stanley Goudy, Vineland, N. J., Medico-Chirurgical College of Philadelphia, 1898, aged 70, died, January 24, of a self-inflicted bullet wound

Cornelius L. Bartholomew, Allentown, Pa., Jefferson Medical College of Philadelphia, 1878, aged 93, died, January 26, of coronary thrombosis

Mervin Edward Kallman, Sioux City, Iowa, Creighton University School of Medicine, Omaha, 1929, aged 30, died, January 26, of pneumonia

Jeremiah Ballard, Los Angeles, State University of Iowa College of Medicine, Iowa City, 1875, aged 92, died, January 15, of chronic myocarditis

John B. Winn, Hamilton, Texas, University of Louisville (Ky.) Medical Department, 1889, aged 82, died, January 22, of mitral regurgitation

Robert Patrick McLaughlin, Ottawa, Ont., Canada, University of Toronto Faculty of Medicine, Toronto, 1903, aged 30, died, Dec. 31, 1937

Edouard Rose, Montreal, Que., Canada, University of Bishop College Faculty of Medicine, Montreal, 1874, aged 63, died, Dec. 11, 1937

Harry Elgin Webster, Dixon, Ill., Rush Medical College, Chicago, 1910, aged 62, died, January 29, in Hillsboro, N. D., of angina pectoris

Francis Ruthven Olney, Detroit, Loyola University School of Medicine, Chicago, 1928, aged 36, died, Dec. 11, 1937, in Little Rock, Ark.

C. H. Bynum, Kinston, N. C., Leonard Medical School, Raleigh, 1896, aged 65, died, January 9, of cerebral hemorrhage and nephritis

Allison Burdette Toaz, Detroit, Detroit College of Medicine and Surgery, 1914, aged 51, died, January 31, in an automobile accident

George Warren Gleason, Cedar Rapids, Iowa, Chicago Homeopathic Medical College, 1888, aged 86, died, January 22, of myocarditis

Matilda Hunt, San Francisco, University of London Faculty of Medicine, London, Ont., Canada, 1909, aged 53, died, Nov. 28, 1937

Martin M. Christianson, Watertown, S. D., University Medical College of Kansas City (Mo.), 1898, aged 79, died, Nov. 26, 1937

William H. Nunn, Morganfield, Ky., University of Tennessee Medical Department, Nashville, 1881, aged 83, died, Dec. 18, 1937

Charles S. Russell, Hamilton, Ont., Canada, Queen's University Faculty of Medicine, Kingston, 1912, aged 49, died, Dec. 10, 1937

Albert Carl Jongewaard, Sioux Center, Iowa, Rush Medical College, Chicago, 1904, aged 57, died, January 2, of pernicious anemia

William Spencer Craghead, Denver, Barnes Medical College, St. Louis, 1895, aged 74, died, January 6, of cerebrospinal meningitis

Edgar Poe Blair, Nashville, Tenn., Vanderbilt University School of Medicine, Nashville, 1890, aged 70, died, Dec. 12, 1937

Charles James Wagner, Toronto, Ont., Canada, University of Toronto Faculty of Medicine, 1899, aged 61, died, Nov. 16, 1937

John W. Nuzum, Wick, Iowa (licensed in Iowa in 1885), aged 89, died, January 15, in Des Moines, of cerebral hemorrhage

Joseph Alexander Reeves, Whitesburg, Ga., Atlanta College of Physicians and Surgeons, 1903, aged 73, died, Dec. 13, 1937

Lindsey Gee Poe, Newark, Ark., University of Nashville (Tenn.) Medical Department, 1893, aged 68, died, January 19

Charles E. Weidman, Marcellus, N. Y., Albany Medical College, 1880, aged 82, died, January 17, of lobar pneumonia

Albert Edward Taplin, Veblen, S. D. (licensed in South Dakota in 1904), aged 71, died, January 15, of myocarditis

Charles B. McLaughlin, Fordyce, Ark. (licensed in Arkansas in 1903), aged 75, died, January 28, of lobar pneumonia

Joseph Schulte, Detroit, Detroit Medical College, 1875, aged 88, died, January 9, of cerebral hemorrhage

F. C. Roark, Kodak, Ky., Louisville Medical College, 1901, aged 84, died in December, 1937

M. H. Davis, Leapwood, Tenn., Memphis Hospital Medical College, 1895, died, January 21



## Bureau of Investigation

### A HAIR-RAISING FRAUD

Paul Downing, Alleged Hair and Scalp Specialist,  
Debarred from the Mails

The "will to believe" is the greatest asset of the "patent medicine" faker. It breaks down sales resistance, it causes fat women to accept as scientific truth the veriest balderdash about alleged short cuts to the svelty figure, it explains why hard-headed—but bald-domed—business men fall easy prey to the grow-hair-quick quacks. Men are sensitive about the loss of their hair. The trait is no modern development, it is at least as old as the time of the prophets.

While there are fashions in quackery there are also good old staple frauds that can always be counted on to deplete the sucker. Cures for baldness rank high among the staples—and Mr. Downing's cure was one of them. Paul Downing of Portland, Ore., sold through the mails a product that, if one believed Downing, would raise hair on a billiard ball. The advertising of this marvel was banally unoriginal but one doesn't have to be a creative spirit to sell cures to the bald-headed contingent.

In due time that overworked branch of the Post Office Department that investigates fraudulent mail-order schemes got around to Mr. Downing and called on him to show cause why his business should not be debarred from the mails. Downing's snappy come-back was an affidavit to Washington submitted by his attorney in which he declared that he had, a few months previously, sold his business lock, stock and barrel to one "Kenneth Ames." About the same time the Post Office officials received a letter from another Portland attorney transmitting what was described as "revised literature" said to have been recently adopted by a certain W. E. Ames. Nothing was furnished to show whether "Kenneth Ames" and "W. E. Ames" were the same person.

According to the government report the Downing "cure" came in four very small bottles, thus:

BOTTLE I—Stimulating Oil. Contained two teaspoonfuls of oil with red pepper and cloves.

BOTTLE II—Scalp Food. Contained four teaspoonfuls of a mixture of two parts oil and one part kerosene.

BOTTLE III—Restorative Oil. Contained a mixture of equal parts of oil and kerosene.

BOTTLE IV—Medicated Scalp Cleaner. Contained three tablespoonfuls of liquid soap with carbolic acid.

These four bottles and their contents cost Mr. Downing 65 cents; he sold them for \$5—which would seem to take care of considerable overhead. The instructions were simple: Use the red pepper mixture on Mondays, the weaker kerosene mixture on Wednesdays, the stronger kerosene mixture on Fridays and shampoo with the carbolic acid liquid soap once every two weeks. The five dollar "treatment" was good for five applications, then one sent for another five dollars' worth.

Part of the Downing ballyhoo were before-and-after pictures of one L. F. Rose of Portland, Ore. Mr. Rose, before using Downing's red pepper, kerosene carbolic acid wonder, was shown with a head as devoid of hair as a marble statue. But after the treatment he is shown with enough hair to permit a marcel wave. The only fault one could find with these pictures of Mr. Rose is that he apparently was just as free of any eyebrows after the treatment as he was before. Nevertheless, Mr. Rose makes affidavit to the fact that "I can hardly find words descriptive enough to express my feelings and thankfulness."

The Solicitor for the Post Office Department—Judge Karl A. Crowley—after considering all the evidence in the case declared that the so-called treatment sold by Downing would not remove the cause of or cure baldness, would not produce a strong healthy, luxuriant growth of hair on the heads of persons who are bald, was not "miraculous," positive or reliable in its effects, and that Downing's scheme was one for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. The Solicitor recommended that a fraud order be issued. On July 31, 1937, the mails were closed to Paul Downing.

### ARTHOX OR SULFIODOXYGENIA

#### A "Patent Medicine" Becomes an 'Ethical Specialty'

About three years ago—in February 1935—a physician wrote to Standard Laboratories, Inc., 30 Huntington Avenue, Boston, asking that concern for the formula of its product "Arthox" which a patient had received. An advertising circular described Arthox as "a scientific medicinal formula" and as an "analgesic specially prepared to aid in the relief of the muscular aches and pains of rheumatism and arthritis." The circular gave no information regarding the composition of the product, in fact the circular was rather obviously *not* addressed to physicians.

In reply to the physician's inquiry Standard Laboratories, Inc., wrote admitting that Arthox was "an over-the-counter preparation"—that is, a "patent medicine"—and stated that the product contained "the following ingredients":

Alcohol (2%)	Burnham's Soluble Iodine
Anise	Sassafras
Glycerin	Sarsaparilla
Methyl Salicylate	Sodium Salicylate

No quantities were given—except alcohol, the proportion of which the federal law requires to be declared—so the information meant little. Yet the concern claimed, in the same letter, that Arthox was being prescribed by a large number of physicians, some of them specialists in the treatment of arthritis here in the east.

This was in February 1935. A year later physicians received "literature" on Arthox stating that the preparation was sold "on physician's prescription only." As the name "Arthox" was apparently too low-brow for an "ethical specialty," that name had added to it a high-hat, and quite meaningless, synonym "Sulfiodoxygenia." Because of the number of inquiries from physicians regarding the product the Council on Pharmacy and Chemistry asked the A. M. A. Chemical Laboratory to analyze this "patent medicine." The condensed Laboratory report, with the technical details of the analytic work omitted, reads as follows:

"One original bottle of Arthox (Standard Laboratories, Inc., Boston) was submitted to the A. M. A. Laboratory for examination at the request of the Council on Pharmacy and Chemistry.

"The label on the bottle indicated that the preparation was for the treatment of arthritis and rheumatoid conditions and gave as a synonym to Arthox the term Sulfiodoxygenia."

"The bottle contained 124 ounces of a yellowish brown liquid containing a brownish sediment. Qualitative determinations indicated sodium, magnesium, calcium, iodide, sulfate, a trace of iodine and a substance yielding an odor similar to anise. Salicylates and other antipyretics and alkaloids were not found."

"The preparation was strongly acid, 1 cc. being equivalent to approximately 4 cc. of one-tenth normal sodium hydroxide."

On the basis of their analyses the chemists reported that it might be concluded that "Arthox" contains as its essential ingredients sulfuric acid, sodium iodide, flavoring substances and probably colchicin."

It would thus appear that the composition of Arthox has changed. The salicylates have gone—is it possible that colchicin has taken their place? It has often been said in these pages that when one buys a "patent medicine" one buys a *name* and not a *thing*. There is nothing fixed about the formula of a proprietary medicine, the maker can change it overnight if he so desires or if commercial expediency so dictates. Many a "patent medicine" on the market today bears but little resemblance to its original namesake. The manufacturers of Arthox have at least a good precedent for such changes in formula as they have seen fit to make.

1. A substance soluble in petroleum and capable of extraction from acid aqueous solution with chloroform was found. The substance gave a weak reaction for colchicin but the amount was small and the identity reactions were never clear-cut.

## Correspondence

### TESTS FOR ALCOHOLIC INTOXICATION

*To the Editor*—I read with interest and admiration the article in *THE JOURNAL*, March 12, by Selesnick concerning alcoholic intoxication and also the article in the same issue by Harger, Lamb and Hulpieu, describing a test for intoxication employing breath. Both articles are scholarly, well prepared and absolutely sound from a scientific standpoint, but, from the point of view of the rural general practitioner an attitude must be taken, less strictly accurate, perhaps, from the laboratory expert's angle, but none the less effective and efficient for the practical purposes of everyday life.

In the first place, both articles, in my opinion, paid less attention than they should have done to the fact of the personal equation—of variations in individual susceptibility. No one would deny that a dose of alcohol that might well kill an infant would have a far less deleterious effect on a seasoned drinker, and any practical physician knows that a given degree of intoxication (including the blood, urine, spinal fluid, and what-not concentrations) produces less clinical manifestation in some individuals than in others with a higher tolerance. A concentration of alcohol that would render one individual definitely incapable of operating a motor vehicle might not produce such an effect in another.

Secondly, one wonders whether such ultrascientific and comparatively complicated tests are actually called for in determining whether or not a given individual is drunk. It is my thought that most general practitioners who are accustomed to exercise common sense in their professional life would be able, after a moderately thorough physical examination and a fairly brief observation of the individual, to say whether or not, in their opinion, he was drunk enough to render him incapable of driving a car. One wonders too whether the results of the careful investigations of the laboratory scientist are of any more real value in a court of law than the sworn professional opinion of one or more experienced and practical doctors.

Far be it from me to decry the investigations of the trained laboratory worker, which are indispensable to modern practice, my reaction merely was, after reading the excellent articles referred to, to wonder whether too ultrascientific an attitude in these drunken driving cases did not smack just a trifle of the pedantic and tend a bit to confuse the issue.

Let us be practical, let us not render our everyday decisions too difficult, especially in the eyes of our brethren of the law, and let us try to make our decisions on the basis of common sense plus practical professional experience and decide each case on its merits, instead of adhering too closely to a rule-of-thumb chemical test.

CHARLES K. REINKE, M.D., Oxford, Pa.

### WATER INTOXICATION

*To the Editor*—I have read with interest the report of Helwig, Schutz and Kuhn in *THE JOURNAL* of February 26. Since they refer to some of our experimental studies (Smyth, F. S., Deamer, W. C., and Phatak, N. M. Studies in So-Called Water Intoxication, *J. Clin. Investigation* 12:55 [Jan.] 1933), I feel justified in voicing an opinion regarding their interpretation. In the acute water intoxication induced experimentally by us in dogs, vomiting, not diuresis, was the more characteristic result. Water was given by gavage; no parenteral fluids were administered. In such cases the course was brief, the electrolyte loss was largely gastric hydrochloric acid, the result a relative alkalosis from acid deficit.

In contrast with these observations, the clinical picture described by Helwig and his co-workers is much more confused. The prolonged course with possible starvation, anorexia, thesias, ketosis (or infection?) added potential acid intoxication. No determinations of total base or sodium are offered to show that a base deficit did not also exist. The bleeding tendency suggests a probable loss of total electrolyte (both acid and base) hardly combated by 7,000 cc of water (proctoclysis, oral route).

I believe their citation shows that care should be exercised in obtaining a more complete panel of electrolyte determination before labeling a condition acidosis or alkalosis. Vomiting itself may cause depletion of both base and chloride but if largely gastric, chloride loss predominates. The predominance of chloride loss in the type of vomiting in dogs raised for a relative alkalosis in our experiments. In the rats used by Helwig and his co-workers, vomiting is not characteristic but, as Gamble and Ross have shown (Gamble, J. L., and Ross, S. G. The Factors in the Dehydration Following Pyloric Obstruction, *J. Clin. Investigation* 1:403 [June] 1932), a gastric dilatation with electrolyte removed from the body has a somewhat similar effect. It may be that a relatively greater removal of base accounts for their experimental picture of acidosis.

As for the clinical picture, I believe great caution should mark the use of sodium bicarbonate unless it is certain that base depletion exists and that the use of proctoclysis and oral administration of large amounts of water with insufficient electrolyte is no protection against ketosis or blood dilution.

FRANCIS SCOTT SMYTH, M.D., San Francisco.

### DOCTOR AND PATIENT

*To the Editor*—The close cooperation of doctor and patient has always been the condition of curing or preventing disease. The Greeks built temples to Aesculapius, and those who were healed at his shrines left votive offerings to the god. The association of priestly offices with medicine existed among primitive peoples. Today the patient places his life and future well-being in the hands of the physician or surgeon, in whom he has the fullest confidence. Full partnership of interest and purpose is the condition of successful medicine.

The patient gives up voluntary action and consciousness and lets the surgeon operate on his body to restore health. The man trusts his wife or his child to the power and guidance of the physician. The physician assumes the Oath of Hippocrates: "into whatsoever house I enter, it shall be for the good of the inmates." This relation between the doctor and those he has undertaken to guide and serve is the essential basis of the healing art. Every physician knows that without full cooperation and confidence of the patient he can do little to keep or restore health.

Mutual understanding and confidence is the essential condition of a physician's power to render real service to his patient. It was the most important and valued possession of the old-time family doctor. This is the reason that every conscientious and experienced doctor looks with disfavor on attempts to extend "state medicine" or "health insurance" into the lives and homes of patients. He knows that prescriptions and operations cannot give health, unless the daily life and fixed duties of the patient is to gain and keep health.

The purpose of the patient must be to make health the chief objective of his daily living. His trust in a medical adviser who will bring to his service all possible achievements of medical and general science that can help him is the only real health insurance. Doctor and patient must know and trust each other so well that they have a joint aim and can do perfect team work to attain it. The patient is the only

who can know of all his symptoms as they arise. He must esteem his physician so highly that he will lay before him the most intimate feelings and desires for the success of their joint undertaking. Specialists may be needed and secured to meet special emergencies. But the personal physician who knows the patient on the one side and the general resources of medicine and the personalities of his professional colleagues on the other is the only one who can bring the full resources of medicine to the help of his patient.

The growth and recognition of preventive medicine make it ever more important that the whole life of the patient should be controlled by the requirements of health. It becomes more and more impossible that the lives and health of the people should depend on the working of a governmental or corporate machine which regards individuals simply as material for its impersonal working. The free association of patient and physician must never be placed in the control of financial interests or social dictatorships. The vital relationship of physician and patient should be guarded by all who understand the value of health.

EDWARD JACKSON, M.D., Denver

### BLOODY TEARS

*To the Editor*—The short paper entitled "Bloody Tears. Bilateral Capillary Hemangiomas," by Dr. T. J. Dimitry (*THE JOURNAL*, February 26, p. 643), interested me greatly. Several years ago I had a patient who complained that he had bloody tears on one side. After careful examination, he proved to have suffered from occlusion of a posterior inferior cerebellar artery, which sometimes produces a unilateral paralysis of the sympathetics on the side of the lesion. This is associated with vasodilatation, dryness of the skin, enophthalmos and the Horner syndrome. Under such circumstances, doubtless a slight abrasion or inflammation of the conjunctivae resulted in a seepage of blood, which the patient called "bloody tears."

I feel that this adds interest to the case reported by Dr. Dimitry.

LOYD H. ZIEGLER, M.D., Wauwatosa, Wis.

### USE OF THIAMIN CHLORIDE IN POLY-NEURITIS AND CARDIOVASCULAR CONDITIONS

*To the Editor*—In the admirable expose of the therapeutic use of vitamin B<sub>1</sub> in polyneuritis and cardiovascular conditions, Maurice B. Strauss (*THE JOURNAL*, March 26, p. 953) justly emphasizes that striking as the results of vitamin B<sub>1</sub> therapy are in the cardiovascular disturbances arising from a deficiency of vitamin B<sub>1</sub>, no effects whatever are to be expected in other types of heart disease with or without edema, in the edema of pregnancy, toxemias, nephrosis and the like.

It may not be amiss to issue a word of caution with regard to the indiscriminate use of vitamin B<sub>1</sub> which is in vogue now, being advocated for a nearly endless variety of conditions. I am referring chiefly to intravenous injections of vitamin B<sub>1</sub>. It has been shown (Narat, J. K., and Loef, J. A. Effects of Vitamin B<sub>1</sub> Concentrate, *Arch. Int. Med.* 60:449 [Sept.] 1937) that not only various extracts but in a lesser degree also synthetic crystalline products may provoke a drop in blood pressure; this effect is possibly attributable not wholly to impurities, histamine or choline. It follows that the depressor effect of vitamin B<sub>1</sub> preparations makes their intravenous administration undesirable in many conditions, particularly those associated with a low blood pressure. Vitamin B<sub>1</sub> is not a panacea, let us use it intelligently, lest it be discredited.

JOSEPH K. NARAT, M.D., Chicago

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### MYASTHENIA GRAVIS

*To the Editor*—What are the cardinal signs and symptoms of myasthenia gravis? Please outline the latest accepted modes of treatment with a word regarding prognosis.

M.D., Missouri

**ANSWER**—The cardinal signs and symptoms of myasthenia gravis are so characteristic that the diagnosis is not usually difficult. In the past, however, there has been considerable difficulty in diagnosing the disease in its early stages. In a majority of cases some trouble with the third cranial nerve is the beginning symptom, which leads to ptosis of the eyelids, either unilateral or more commonly bilateral, and some degree of diplopia. This may be the only sign which the patient shows. There is a tendency, moreover, for the weakness of the muscles to become more pronounced as the result of use, so that toward the end of the day the condition is worse than in the morning. Associated with the weakness of the muscles supplied by the third cranial nerve, one often finds weakness of the external rectus muscle, supplied by the sixth cranial nerve, and next in frequency there is involvement of the muscles innervated by the ninth cranial nerve, leading to dysphasia. A careful examination, moreover, will usually disclose bilateral weakness of the seventh cranial nerve, with some dulling of the patient's facial expression and inability to close the eyes tightly or to show the teeth widely. With this involvement of the motor branch of the fifth cranial nerve, difficulty in chewing or even inability to hold up the jaw frequently appears. It is characteristic for these patients to sit holding their lower jaw on their fist, with an expressionless face, often a nasal tone of voice, and with their eyes either partially or completely closed. Muscles involved less frequently are those of the neck and of the extremities. Some patients actually have difficulty in holding up the head. The weakness in the arms is usually generalized, without specific muscle involvement. In walking and getting up or down from a chair or bed the loss is a general one, although there may be partial footdrop. Easy fatigue of voluntary movements, without adequate cause, in some generalized activity is suggestive of myasthenia gravis. The disease is seldom seen before the second decade of life and is commonest in the third decade. Formerly it was considered that cases rarely occurred after the age of 30 and were almost unknown after 40. In the last few years a more careful study of the disease, as the result of its early diagnosis by the use of prostigmine, has led to the conclusion that older patients are not infrequent sufferers, even those in the sixth and seventh decades of life. In the older patients there is often a predilection toward dysphasia and dysarthria, with involvement of the neck muscles and generalized weakness.

The discovery of prostigmine and its remarkable effect on myasthenia gravis have led to its use not only as a diagnostic measure but also for treatment. In diagnosis the response in myasthenia gravis is rapid and remarkably complete and response in all other diseases is only slight. Viets and Schwab (*N. Y. England J. Med.* 213:1280 [Dec. 26] 1935) and later Viets and Mitchell (*ibid.* 215:1064 [Dec. 3] 1936) reported on the use of prostigmine as a test and devised a simple means of recording the data. Subsequently prostigmine has been used extensively in the treatment of the disease, having replaced in large measure most of the drugs formerly used, such as amino-acetic acid, ephedrine, benzedrine and potassium chloride. At first given subcutaneously or intramuscularly, prostigmine recently has been used in a tablet for oral administration with considerable success. Since the advent of this drug there have been few deaths. In a series of twenty-three cases reported by Viets, Mitchell and Schwab (*THE JOURNAL*, Dec. 11, 1937, p. 1956) in which the ages varied from 20 to 76, only one death occurred and that of a patient who did not keep up his daily intake of prostigmine by mouth. A 15 mg. tablet is used, sometimes with tincture of belladonna or atropine if the prostigmine causes abdominal discomfort. The effect of the drug, moreover, may be slightly augmented in some cases by the use of 0.025 Gm. (three-eighths grain) of ephedrine three times in the twenty-four hours. Prostigmine is used from four to twelve times a day, the spacing of the drug being of considerable importance. Once the maximum dose is achieved patients have been con-

tinued on it for an indefinite time, in some cases as long as two years. Under this regimen about half the patients are able to resume their ordinary occupation, provided it does not require active muscular effort. Other patients are made fairly comfortable, although their life is much restricted. In cases in which there has been difficulty in swallowing, the oral pill may be given by stomach tube or, better still, an emergency injection of prostigmine intramuscularly may effectively tide over the crisis. Ampules of prostigmine should always be kept at hand.

## HAIR COLOR AND DISEASE

To the Editor—To what diseases are blondes, brunettes and red heads disproportionately susceptible? Please include skin diseases. Is there a disproportion in the sickness and death rate of blondes, brunettes and red heads?  
M D Massachusetts

ANSWER—There is apparently little information available on the subject of this inquiry. On page 102 of Draper's "Human Constitution" (Philadelphia, W B Saunders Company, 1924) it is stated that "among the tuberculous people 71 per cent of the males and 76 per cent of the females were light haired. Thus

## Hair Color

	Hair Color			
	Light	Brown	Red	Black
Gallbladder disease				
Male				
Number of cases	3	7	0	3
Percentage of total cases	23.1	53.8	0.0	23.1
Female				
Number of cases	3	11	0	16
Percentage of total cases	10.0	36.7	0.0	53.3
Gastric and duodenal ulcer				
Male				
Number of cases	3	10	2	14
Percentage of total cases	10.3	34.3	6.9	48.3
Female				
Number of cases	0	7	0	5
Percentage of total cases	0.0	58.3	0.0	41.7
Nephritis and hypertension				
Male				
Number of cases	5	7	0	3
Percentage of total cases	33.3	46.7	0.0	20.0
Female				
Number of cases	2	11	2	3
Percentage of total cases	11.1	61.1	11.1	16.7
Pernicious anemia				
Male				
Number of cases	4	7	0	3
Percentage of total cases	23.6	40.0	0.0	21.4
Female				
Number of cases	4	8	0	5
Percentage of total cases	26.7	47.1	0.0	26.2
Asthma				
Male				
Number of cases	0	1	1	3
Percentage of total cases	0.0	20.0	20.0	60.0
Female				
Number of cases	0	5	2	3
Percentage of total cases	0.0	40.0	20.0	40.0
Tuberculosis				
Male				
Number of cases	51	6	2	13
Percentage of total cases	70.8	8.3	2.8	18.1
Female				
Number of cases	16	3	0	2
Percentage of total cases	76.2	14.3	0.0	9.5

cannot be accounted for as a Nordic or racial characteristic, since this group is only about 50 per cent Nordics. On page 240 of the same book is a table relating hair color to various diseases. As can be seen from the accompanying table, which gives the information contained in the one prepared by Dr. Draper, the number of patients was small, the results therefore must be viewed with conservatism and the percentages disregarded.

## QUININE AND ATABRINE IN BREAST MILK

To the Editor—Are there any data on the excretion of quinine and atabrine in breast milk?  
M D Mississippi

ANSWER—Terwilliger and Hatcher (*Surg Gynec & Obst* 58:823 [May] 1934) have stated that "quinine may be detected in 1,500,000 parts of milk but the amounts present in very low concentration slightly exceed those actually recovered. These authors administered five doses each of 300 mg. of quinine sulfate orally to two women and seven doses of 640 mg. to four women. Traces of quinine were detected in the milk in every case in one instance in the milk drawn thirty minutes after the administration. None was found in milk drawn as late as twenty-four hours after the administration of quinine.

According to Terwilliger and Hatcher the amount of quinine secreted in the mother's milk is too small to have any injurious effect on the nursing infant.

No references have been found on the excretion of atabrine in breast milk. However, it may be worth while to emphasize as was pointed out many years ago by Bueura (*Ztschr f exp Path u Therap* 4:398, 1907) that very few drugs have been found with certainty in the breast milk. Kunitz and Hatcher (*Excretion of Drugs in Milk, Am J Dis Child* 49:900 [April] 1935) studied the excretion of drugs in human milk and were especially interested in examining milk for morphine, codeine, salicylic acid, phenolphthalein, barbitol, sodium bromide and potassium bromide. They concluded that none of the above mentioned drugs except sodium bromide were present in the milk in an amount sufficient to indicate that the continued use of milk would injure a normal nursing child.

## ERECTIONS AND FLATUS

To the Editor—A well developed and well nourished married aged 43 for the past twelve years has been obliged to arise at 3 o'clock in the morning because of lower and intra abdominal gas pressure coupled with a severe erection. The erection precedes the pain symptom by about thirty minutes and the gas or pressure is relieved only after the subsidence of the erection after which considerable flatulence is passed. The only method by which relief is obtained is by walking the floor for two or more hours. This procedure has been repeated every night without fail for the past twelve years. A variable amount of generalized genital soreness persists for several hours because of the persistent erection and a certain amount of lassitude is present the rest of the day because of the loss of sleep. The sexual life is normal save that intercourse will aggravate the condition at the next session. Physical examination is essentially negative save for a few bouts of constipation and biliousness. The weight temperature blood pressure blood urinalysis Wassermann reaction prostate and prostatic secretions are normal. Gastric analysis reveals total acids of 25 at the height of the digestive period. The patient does not belch or eruct gas. He is perfectly normal during the day.  
M D Wisconsin

ANSWER—The patient is probably troubled with prostatitis in spite of the fact that rectal examination reveals a prostate within the limits of normal. The reflex gastro intestinal disturbance is most likely on a basis of urinary retention and subsequent prostatic irritation. The patient should have a cystoscopic examination and probably subsequent prostatic massage if no local treatment is suggested from examination of the bladder.

## INTRANASAL OPERATION FOR REMOVAL OF EXCESSIVE ETHMOID BONE

To the Editor—In a number of older persons a submucous operation on the nose done in early life failed to include sufficient removal of the superior portion of the perpendicular plate of the ethmoid bone. The result later has been elaboration of bony tissue along the rough cut end of this perpendicular plate with subsequent closing of one or both nasal fossae in their superior portions these portions being particularly narrow. Specialists have given me to understand that separation of the mucous membrane for a second submucous operation is impossible. In one instance pressing the offending portion of the ethmoid back into the (rebakening it) gave only temporary relief. Is there any accredited method for solving this problem? Is an open operation even at the expense of scarring the nose ever resorted to with success?  
M D New York

ANSWER—An open operation in cases of this type is certainly not indicated. The thickened bone can be removed intranasally without the necessity of attempting to separate the agglutinated mucous membranes below it. The incision should be made along the lower border of the bony ridge, which is easily palpable and it may be placed in whichever side of the nose is most convenient or accessible to the surgeon. The mucoperiosteum is first elevated on the same side. Then it is necessary to expose the lower rough edge of projecting bone so as to permit a small curved periosteal elevator to peel off the mucoperiosteum of the opposite side. Naturally great care is necessary to avoid perforating the mucous membrane on that side. However, in most cases if the field has been injected with procaine hydrochloride and epinephrine there is very little bleeding and the progress of the instrument can be guided by direct vision. After the bone has been exposed on both sides it may be removed by using a sharp chisel, which is directed along a line parallel to the nasal bridge and at a safe distance below it. It is well in these cases not to attempt to break off too much bone at one time and it is recommended that if broken off piecemeal with the Freer Gruenwald forceps. In this manner one can safely approach the nasal bridge and even the olfactory region without the risk of accidentally fracturing the cribriform plate. At the conclusion of the operation one should have an intact mucosa on one side and a long incision in the mucosa of the other side running upward and backward. Since the

mucous membranes below the field of activity have not been touched, there is no need to pack the nose. Should there be persistent bleeding from the wound, it can be controlled by inserting on each side a cotton dental roll dipped in petrolatum, which is pushed up high under the bridge and left in place for twenty-four hours.

#### RURAL LIFE AND MENTAL HEALTH

*To the Editor*—I have heard that the largest percentage of mental cases were to be found among the wives of farmers and this was caused by the fact that they lived isolated lives on remote farms and saw few if any people outside their immediate families. It has been stated also that with the coming of the telephone and the radio there was a material decline in this type of case because of the fact that these women experienced contacts with the outside world. Is this true? Where can I get the facts?

W E AUGHTHAUGH MD New York

**ANSWER**—The belief that mental disorders are more frequent in the wives of farmers arose largely from statistical studies reported from the eastern states forty or fifty years ago. More recent studies of the same nature tend to show no greater incidence of mental disorder in rural women than is found in the urban group. In fact, the pendulum seems to have swung in the other direction. However, no statistics seem available which are sufficiently general to cover the entire United States.

There is probably no single cause responsible for this change. While greater communication and contact through telephones, automobiles and radios may have contributed to this result, there have been other and even more profound changes in rural life which are equally, if not more directly, acting influences on mental health. First of all, improved rural sanitation has undoubtedly resulted in better physical health and this in turn has preserved mental health, then to be considered are improved rural medical care, elimination of drudgery and monotony by rural electrification, the utilities now available throughout the country, the newspapers, weeklies and periodicals and as far as women are concerned, one might also add clothes and cosmetics. Probably there are other less evident but equally potent factors, such as higher standards of living generally. It is difficult to point out any one or even several influences that have had a favorable influence all of which merely show how far so called mental hygiene is tied up with social as well as physical environment in every respect.

#### PAIN IN GROINS DURING PREGNANCY

*To the Editor*—During the latter half of pregnancy many women complain of pain or discomfort in one or both groins. I read some time ago that relief may be given to such patients by intramuscular injections of a preparation the name of which I have forgotten but which I believe was a vitamin product. In any event will you please advise me on the treatment of this condition.

MD Ontario

**ANSWER**—The discomfort in the groins that the patients complain of during the latter half of their pregnancy is probably due to the vascularity and hypertrophy of the ligamentous supports of the uterus. A properly fitting abdominal support will usually relieve this. There are no vitamin preparations which influence this condition.

It is possible that the physician is referring to muscular cramps of the thighs and legs, which occur during pregnancy. These cramps may be indicative of an insufficient calcium intake. It has been suggested that calcium gluconate put up in ampules containing 1 Gm, be given intramuscularly to increase the supply of calcium. These injections often help in the treatment of muscular cramps during pregnancy.

#### OVULATION—FORMATION AND FATE OF SPERMATOZOA

*To the Editor*—Do the two ovaries produce an ovum simultaneously? If so why is but one usually fertilized? What is the life of a spermatozoon when not expelled and if not expelled through intercourse what happens to it? How long is it till other virile spermatozoa are formed? Would the physical condition of the male germ just before fertilization have any bearing on heredity?

FRANK E WIEDEMANN MD Terre Haute Ind

**ANSWER**—Practically always only one ovum is expelled from one or the other ovary during each monthly cycle, hence only one ovum can be fertilized. Ovaries may or may not alternate in ovulation. Occasionally two ova are expelled at the same time or very close together and, if both are fertilized, twins result. Ovulation is controlled by an anterior pituitary hormone. Probably only one ovum is expelled because the amount of anterior pituitary hormone is sufficient to stimulate ovulation in only one follicle. If more anterior pituitary is injected into animals more follicles can be made to expel ova. In fact even during early pregnancy in rabbits it is possible

to induce ovulation by the injection of anterior pituitary. The ova thus expelled are normal and possess the capacity for fertilization and development.

Spermatozoa are capable of living a few days in the testicles and semiferous tubules. If coitus or ejaculation does not take place within a reasonable length of time, the spermatozoa in the genital tract die just as any other type of cell does. Spermatozoa are constantly being formed in normal men. At the time of an orgasm, not all the sperm in the genital tract are expelled at one time. Some deep down remain there or reach higher parts. It is probable that, when defective sperm fertilize normal ova, miscarriages result. In these cases the fetuses may or may not be normal. Some abnormal conditions are hereditary and, although sperm transmit some of these abnormalities, the gross physical condition of the sperm may nevertheless be normal. Definitely abnormal sperm are probably incapable of fertilization.

#### AUTONOMIC IMBALANCE

*To the Editor*—A man aged 45 has complained for fifteen years or more of a constant burning sensation in the left lower quadrant discomfort and slight distention. He has weakness and there is some perspiration of the hands. There is no nausea vomiting or melena. The entire examination of the chest is negative. There are no masses in the abdomen. There is no rigidity. A series of roentgenograms of the gastro-intestinal tract including the gallbladder was negative. Two blood tests showed 5 000 000 erythrocytes and 90 per cent hemoglobin. Leukocytes numbered 7 800 with 1 per cent eosinophils, 45 per cent polymorphonuclears, 47 per cent lymphocytes and 7 per cent mononuclears. The Schilling count gave no myelocytes, no juveniles, 8 per cent basophils and 37 per cent segmented cells. The Wassermann reaction was negative. Sometimes the skin appears slightly dusky or tanlike. What must I consider?

MD, Massachusetts

**ANSWER**—A clinical condition that has persisted over a period of fifteen years and has produced no demonstrable structural changes is likely to have its origin in a functional disturbance. The patient described might well fall into the group said to suffer from autonomic imbalance of the vagotonic type. With a normal total leukocyte count and a lack of abnormalities the differential count shown does not seem particularly significant. There is no unanimity of opinion regarding the importance placed by Schilling on small variations in the differential count. It is interesting to note however, that Schilling considers a lymphocytosis with a normal white count a diagnostic feature in vagotonic states.

Schilling cites the following as typical of "vagotonia": total white count, normal, basophils, 0, eosinophils, 4 per cent, neutrophils, 45 per cent, lymphocytes, 45 per cent, monocytes, 6 per cent, myelocytes, 0, juveniles, 0, stab cells, 1 per cent, segmented cells, 44 per cent. With the exception of a slightly higher percentage of eosinophils, this count shows a striking resemblance to the one exhibited by the patient under discussion.

#### PAROXYSMAL NOCTURNAL DYSPNEA OR CARDIAC ASTHMA

*To the Editor*—I should appreciate a discussion from the points of view of pathologic physiology and of therapy of the symptom complex of paroxysmal nocturnal dyspnea encountered in cases of hypertensive cardiovascular disease.

PHILIP SIEGEL MD Beacon N Y

**ANSWER**—Cardiac asthma is the preferred term to describe the attacks mentioned. R S Palmer and P D White (The Clinical Significance of Cardiac Asthma, THE JOURNAL, Feb 9, 1929, p 431) and Sylvester McGinn and P D White (N. Y. England J Med 207 1069 [Dec 15] 1932) have reviewed the largest collection of these important cases. The symptom complex is truly asthmatic in nature and is fundamentally of cardiac origin. The exact mechanism is not known but it is apparently induced most often by failure of the left ventricle to respond to an increased functional demand. It occurs so frequently, though not necessarily, at night with the patient asleep, that it appears to be associated with an increase in the volume of blood in the pulmonary field as the result either of the effect of gravity in the recumbent position or of insufficiency of the left ventricle, or to both of these factors. As a result of this reduction of vital capacity the respiratory center is subjected to excess reflex stimulation and as sleep becomes lighter the nervous mechanism gradually becomes freed from its normal sedation and at a critical point responds producing violent dyspnea.

The immediate treatment is to reduce the sensitivity of the respiratory center, which is done specifically by morphine. Preventive treatment is the same as that of chronic congestive heart failure, namely, rest, reduction diet, diuresis and digitalis. The presence of the symptom complex indicates that the therapeutic regimen has been inadequate.



## COITUS DURING MENSTRUAL PERIOD

To the Editor—Will you kindly give me a detailed discussion on the subject of intercourse between husband and wife during her menstrual period. What are the dangers if any? Will too much sexual excitement produce pelvic congestion with noticeable symptoms and should this result in abnormal menstrual flow? If such is the case what are the diagnosis, symptoms and treatment?

MD Maryland

ANSWER—There are no statistics to be found in medical literature on this question and practically no discussion. As an almost universal rule coitus is not deliberately engaged in during this time, mainly for esthetic reasons. The German sexologist Rohleder actually advises coitus on the last day of the period, on the theory that it is a good time for impregnation. Investigations on the behavior of spermatozoa in the female genitals have demonstrated live spermatozoa in the uterus during the menstrual period. Thus in one case at least the menstrual blood was not inimical to the vitality of the spermatozoa. Coitus during menstruation is so rare that there are not a sufficient number of cases recorded from which general deductions can be made.

## NEOARSPHENAMINE IN UNDULANT FEVER

To the Editor—I have recently been informed of a physician who has successfully treated several cases of undulant fever by intravenous injection of neoarsphenamine. I have been unable to locate any literature on this type of treatment. Is there any rationale for neoarsphenamine in undulant fever?

MD Oregon

ANSWER—Conflicting reports have appeared in medical literature regarding the efficacy of neoarsphenamine therapy in undulant fever. Simpson (*Ann Int Med* 4 238 [Sept.] 1930) found this method to be ineffective. The common denominator of the methods of treatment which have proved most effective in the management of undulant fever, such as Brucella melitensis vaccine, brucellin (Huddleson), typhoid vaccine and artificially induced fever therapy, has been the production of a febrile response. There does not appear to be any rational basis for the employment of neoarsphenamine therapy in undulant fever.

## OSTEOMYELITIS AND OSTEOPOROSIS AFTER INJURY

To the Editor—Will you be kind enough to let me know whether a man could develop an osteomyelitis or at least an osteoporosis showing up in a roentgenogram if he was injured Aug. 20, 1937, at 1:30 p. m. and came to a physician August 23 with an infection of the left index finger.

NATHAN TANDET MD New York

ANSWER—It is possible that an osteomyelitis might develop in three days following an injury but it is quite unlikely that osteoporosis would be demonstrable in an x-ray film three days after an injury. More time than that would necessarily have to elapse before the calcium content of the bone could be sufficiently reduced to cause this phenomenon to be present.

## ADULTERATION OF MILK AND GOVERNMENT STANDARDS

To the Editor—Is there any simple test to show whether or not there is any powder in milk to make it thick or cream appear thicker?

MD, Ohio

ANSWER—There is no simple test to detect adulteration of milk or cream. A publication of the department of agriculture of the state of Ohio entitled "Ohio Food, Dairy and Drug Laws and Sanitary Regulations and Standards" provides considerable information about the legal requirements for milk and other dairy products.

## BENZOIC AND SALICYLIC ACIDS WITH CALAMINE AND PHENOL

To the Editor—Would calamine 1 drachm (4 Gm) and phenol 10 grains (0.65 Gm), together with benzoic acid 1 drachm (4 Gm) and salicylic acid one-half drachm (2 Gm) as much as will suffice with a plain ointment base have any chemical or physiologic incompatibility or would this be in any way undesirable? Do you think the calamine and phenol would detract from the value of the benzoic and salicylic acids?

MD Georgia

ANSWER—There is no incompatibility in the prescription.

## EXCESSIVE BEER DRINKING

To the Editor—Is there any known remedy for excessive beer drinking? Can this remedy be administered without the patient's knowledge?

SIGMUND R. LOWAK MD, Adamstown Md.

ANSWER—No reference has been found to any recognized specific remedy for excessive beer drinking. The sanatorium treatment, which has been extensively used for chronic alcoholism, cannot be applied without the patient's knowledge.

## Council on Medical Education and Hospitals

## ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty Fourth Annual Meeting held in Chicago Feb. 14 and 15, 1934

(Concluded from page 1389)

DR J. W. BOWERS, Fort Wayne, Ind., in the Chair

## THE FEDERATION OF STATE MEDICAL BOARDS

FEBRUARY 15—AFTERNOON

## SYMPOSIUM ON PROMULGATION OF REGULATIONS AUTHORIZED BY LAW

## Nature and Scope of Regulations, Authority for Promulgation, Manner of Promulgation, Proof of Regulations in Court Proceedings

DR ROY B. HARRISON, New Orleans. In the light of legal principles, we may conclude that a state board of medical examiners may be given the authority to enact only such rules and regulations as relate directly to the subject matter covered by the legislative act and which are reasonably necessary to carry that act into effect. In what detail the legislature must express the intentions sought to be accomplished by the law is a question of fact to be determined, in the event of controversy, by the courts. The question of whether the courts should give a liberal or narrow construction to an act of this kind touches on a much broader subject. From our point of view, the greater the detail in which the legislative intent is expressed, the less the risk of a court throwing the law out as an unconstitutional delegation of legislative power.

Most of the medical practice statutes enumerate the subjects in which the applicant must stand an examination and the educational standards he must meet in order to qualify for the practice of medicine. Under this type of statute, the duty of the board is primarily that of preparing examinations in the designated subjects and ascertaining that the other requirements of the law are complied with. The constitutionality of this type of statute has been upheld by the Supreme Court of the United States in the cases of *Dent v West Virginia* and *State Board of Medical Examiners v Life*, the latter of which involved the statute of Louisiana.

It has been held that the legislature does not have the right to vest in any board the unqualified and unrestricted power to determine who shall engage in any profession, trade or business. Between this extreme case and the ordinary type of statute is a vast middle ground, within which statutes may be held to be constitutional or unconstitutional, depending on the extent to which the legislative will is expressed in the statute and, to a lesser degree, on whether any particular court applies a liberal or a narrow construction to the act in question.

The second question is the power of regulation that has actually been granted to the board of medical examiners. Obviously, the legislature may not have seen fit to give to the board of examiners as full authority and power on this subject as it might lawfully do. Under the Louisiana law the type of regulations contemplated are such rulings as the board finds necessary to enable it to operate efficiently and to assure conformity in the execution of the law. This act does not contemplate the adopting by the board of regulations imposing any fundamental requirements. Under a law less specific than the Louisiana type of statute, the regulations of the board of examiners would, of necessity, cover a greater scope.

It might seem desirable to make the statutory law as general as possible, so that the board of examiners should as a body of experts, have the power to determine from time to time some of the fundamentals of the subject. The only disadvantage of this type of law is its constitutional uncertainty.

Most state constitutions contain specific requirements as to the method of promulgating laws adopted by the legislature. The most usual requirement is by publication in the official journal. In any instance in which the law has specifically provided a method of promulgation, it is clear that such method must be followed in order for the rules and regulations to have legal effect. The supreme court of Louisiana has held that rules and regulations of the board of health need be promulgated only in the manner required by the legislative act authorizing their adoption and that the constitutional provision prescribing the method of promulgating statutes is not applicable. In the past ten years, in lieu of printed booklets, we have multigraphed forms made in the office, for specific applicants, such as "Rules and Regulations Governing Examination in Medicine," "Rules and Regulations Governing Reciprocity" and "Rules and Regulations Governing Endorsement of Applicants to Another State." Approximately 90 per cent of applicants for examination in Louisiana are graduates of either Tulane University or the Louisiana State University Medical Center.

From time to time as important rules and regulations are adopted by our board, especially those referring to requirements for examination and medical licensure, copies are sent to the deans of both universities with the request that they transmit the information contained therein to the medical students. About a month prior to our June meeting, multigraphed forms containing information relative to our requirements for examination, states with which Louisiana has reciprocity and other material, are posted on the bulletin boards of the medical colleges in Louisiana, and it has been our practice to have the presidents of both of the senior medical classes call at our office to be given detailed information for the benefit of the members of the graduating classes. We have found this method of promulgation very effective in Louisiana.

To prove the adoption of any resolution by a state board or commission, it is necessary to produce in court a copy of such regulation certified as correct by the secretary of the board or commission. We feel that every examining board should have a legal adviser. Our experience has shown it to be advantageous for a state examining board to have its own attorney. For many years our board has had its own special attorney, in addition to the public attorneys, and we feel that we would have been much handicapped had we been unable to employ our own counsel.

#### Formulation and Promulgation of Regulations Authorized by Law for Medical Licensure

DR THOMAS J. CROWE, Dallas, Texas. Only executives of long experience are aware that there are more incompetents and impostors now preying on sick human beings—attempting to practice medicine—than ever infested any other profession or occupation in the history of the world. Only an executive of long service could possibly know how urgently necessary it is that the reputable medical profession and the state boards should get together and plan to expose effectively the incompetents and impostors, and to formulate and secure if possible the general adoption of a uniform medical practice act, so skillfully constructed and so clearly defined that it cannot be misinterpreted even by a layman, which will effectively stop the medical pirates now victimizing human sufferers. Such a general law would be more effective than the forty-eight different statutes we now have to deal with. Every essential, fundamental regulation for licensure should be clearly, completely and specifically stated in the statute so that it cannot be misunderstood or misinterpreted even by a child. I do not believe that discretionary power to modify or waive qualifications essential to the safety of the public should be delegated to an irresponsible, temporary appointive organization. The phraseology of a law governing such fundamental regulations, particularly in defining what constitutes the practice of medicine or the treatment of a disease or disorder, moral turpitude, unethical practice and malpractice, unprofessional conduct and so on should be so completely defined as to eliminate any possibility of misinterpretation.

To clarify the point I shall quote the definition of the practice of medicine, as defined in the Texas act. The definition reads as follows: Who shall be regarded as practicing medicine? 1 "Any person who shall publicly profess to be a physician or surgeon and shall treat or offer to treat any disease or disorder, mental or physical, or any physical injury or deformity by any system or method or to effect cures thereof, or 2 Who shall treat or offer to treat any disease or disorder, mental or physical, or any physical injury or deformity by any system or method, and to effect cures thereof and charge therefor, directly or indirectly, money or other compensation." Notwithstanding our definition seems to be as nearly fool proof as it was possible to make it, we sometimes have trouble in getting a conviction because of lack of completeness, because of our failure to cover the use of the hands in making so called adjustments and the like. Since the most flagrant of our violators assert that they never professed to be a physician or surgeon, that they do not give medicine of any kind, that they do not treat a disease or disorder, that they simply adjust the spine, it is not always possible to convince all jurors that one who does not profess to be a physician or surgeon nor treat a disease or disorder nor give medicine of any kind, only adjust the spine, should be convicted of practicing medicine. Our law is also deficient in that it fails to define the acts which constitute moral turpitude, malpractice, unethical practice and unprofessional conduct. Unless all these acts are completely defined in the statute, the outcome of a case must depend on the opinion of the trial judge, as to the intention of the legislature which enacted the law, and on the interpretation of the jury as to what constitutes a violation of the law.

I believe that education of the public to realization of what modern scientific medicine has actually done for suffering humanity in the last hundred years is far more convincing and important to the peoples of the world, and that such realization eventually will more certainly, completely and permanently stop medical piracy and racketeering than the most cleverly conceived statute for the inhibition or suppression of activities which the unlicensed, incompetent practitioner, his high powered attorney, his promoters and his friends refer to as maliciable rights.

In promulgation of its law and its rules and regulations, the Texas board publishes each year, on expiration of the registration period, a "Handbook of Information, with Official List of Authorized Practitioners of Texas for the Year and Extracts of the Law" a copy of which is mailed to every district and every county medical society of the state (134), every district attorney, every county attorney, legislators, Better Business bureaus (500 in the state), state, county and municipal officers, inquiring insurance companies and all who seek information on the law and the rules and regulations of the board, inclusive of the newspapers.

We have a large register, indexed in 120 subdivisions, containing a complete record of every practitioner licensed in Texas since the organization of the present board in 1907, a record of all examinees of this board since 1907, with grades made, general average, and showing whether licensed or rejected, and number and date of license, and a record by serial number of the name of every practitioner to whom a registration permit has been issued since 1932, when registration was adopted.

#### DISCUSSION

DR WILLIAM C. WOODWARD, Chicago. There seems to be a confusion in the minds of our secretaries and many laymen as to the difference between our state laws and the regulations made by virtue of those laws. A legislature cannot delegate to any subordinate body its legislative powers. That rule was rather strictly adhered to until say within the last quarter of a century within which time there has grown up a great body of what is known as administrative law. No legislature could write into the statutes every detail of administration and enforcement necessary to insure success. So the courts have recognized that a legislature may delegate to an official body that is charged with the enforcement of the law the duty of

putting in details under the law that are necessary to the accomplishment of some general purpose set out in the statute. Under some authority of that kind our several examining and licensing boards operate. So long as the examining and licensing board promulgates regulations within that limit, the limits necessary to make the law effective, those regulations are valid. The moment the board oversteps the limits and undertakes either to enlarge the medical practice act or to diminish it, the regulation is void. I should divide the regulations that a board may promulgate into two classes. One class has been referred to here as the regulations that are limited in their effect to the board itself. I do not believe that any special authority is necessary to enable a board to promulgate regulations of that sort. The regulations of the second class are those that are intended to govern persons who have no official relation to the board or who have just established official relations of some kind in order to obtain licenses or in order to bring about the revocation of a license or something of that kind. Those regulations must have the certainty of a statute.

The statute that is promulgated by an examining and licensing board, a board made up of scientifically well trained men, ought to be more certain than is the type passed by a state legislature or by Congress. Undoubtedly, in the formulation of those regulations the services of a lawyer are indispensable. In the first place the regulations must be kept within the limits prescribed by the statutes. The regulation must be accurately fitted into the regulations that are already in force. After everything has been phrased in proper form, the regulation must come before the board and be voted on in the ordinary course of business and adopted by the board by the required majority, whatever that may be, all of which should appear in the minutes of the board. It may be desirable to keep a separate record of those regulations. If that separate record is a record that is authorized by law, it may be admitted into court as evidence. Otherwise the best evidence is the minutes of the board that can show just what the regulation is at any given time. There will be little difficulty in certifying to the regulations of a given board within the state in which that board functions. A greater difficulty will arise in connection with applications for licenses in other states, by licentiates of a given board who desire to prove in some foreign state just what the regulations were in the home state at the time of the issue of the license. I think no very exact requirements have been made regarding the certification of copies of the regulations promulgated by some foreign examining and licensing board. If the matter comes into court, the regulations will probably have to be in the form in which they can be certified, in the first place, by the secretary of the board, under the seal of the board, and then certified by some proper court and state officer in order to satisfy the requirements of the other state.

Any one who proposes to apply for a license to practice in a given state ought to be able to turn to a given official record or to obtain from the board an official copy of that record telling him exactly what is required of him. That involves publication somewhere. The best way, in the absence of any express requirement, is publication in some newspaper or in some official state publication provided for the publication of records of that sort. The regulations referred to should cover the form of application, the time of examination, the standards to be set by examination, what constitutes an accredited school, what schools will be recognized and what schools will not be recognized. Possibly they should elaborate on the details looking toward the suspension and the revocation of licenses, which, after all, constitutes one of the functions of the board that is most likely to be called into question in court.

The authority of the boards to make regulations has, I think, been rather loosely construed in many places. To indicate the nature and extent of the authority and the limitations on the authority in some particular cases I will refer to the statutory provisions in several of the states. In Oklahoma and in Oregon there is an interesting provision providing that the board shall increase the educational requirements for license as educational requirements in other states are increased. Here is a provision in Pennsylvania. "The department of public

instruction be and hereby is authorized and directed annually at least three months prior to the end of the current fiscal year, to fix the fees to be charged by the several professional examining boards within said department during the ensuing fiscal year." That must be done within a stated period or it isn't effective. South Dakota has a very elaborate system in practice. The board there has the power "to license and regulate the practice of medicine and surgery within this state and to make all rules and regulations which may be necessary or expedient to that end." But as in North Carolina when we examine the context we find that the power of the board is much limited. Utah has an elaborate scheme and apparently without any statutory authority, has undertaken, as North Carolina has done, to recognize the officers of the Army Navy and Public Health Service, and diplomates of the National Board of Medical Examiners. A question recently arose in connection with licensure, where an attempt was made to impose practical examinations in connection with reciprocity. That was a case in which reciprocity was authorized, as may be, and the boards agreed between themselves that they would not reciprocate except after a practical examination. I think there is a grave question as to how far that can go. If the board has discretion as to whether it will not license a person by reciprocity, it may impose such a requirement, but where the law fixes the conditions under which reciprocal licenses shall be issued, according to at least one decision, the board cannot go beyond that. I have in mind cases in which the boards have undertaken to impose citizenship requirements in the absence of anything whatever in the statute authorizing that to be done. It would seem as if the federal government has not placed any prohibition on the incoming of foreigners and if the state legislature has not imposed citizenship requirements, that is assuming a state legislature can impose citizenship requirements—and concerning that there is serious doubt—certainly it is hardly likely that a board itself can act in such an important function.

DR CROWE: Is it true that a board must classify the colleges on its own account, and it cannot take an outsiders classification?

DR WOODWARD: In the state of California that question has arisen, and the recognition of the classification of colleges by the American Medical Association has been sustained. Generally speaking, however, the board must establish its own standards and enforce them. It can if it sees fit establish the same standards that the Council on Medical Education and Hospitals established, and it can take evidence of what the Council has done.

#### The Basic Science Law Its Purpose and Effect on Registration and Reciprocity

DR JULIAN F. DU BOIS, St. Paul: Minnesota's law requires that before a candidate may appear before any board for examination whether medical, osteopathic or chiropractic he must present a certificate in the basic sciences. If a diplomate of the National Board, his part I is accepted in lieu of a basic science examination. The law has worked a hard hip on the doctors because it has reduced reciprocity for those with Minnesota licenses many boards feeling that since we cannot admit their men without a Basic Science Certificate they cannot admit our men without an examination. Since 1937 we have admitted 173 doctors by reciprocity and seven by three by National Board certificates, and we hope that before many years our difficulties will be ironed out and reciprocity again general. We do not blame these boards but we do feel that the standards of healing have been raised in our state and our public therefore benefited. Before the passage of our law science and registration laws investigations and prosecutions were carried on by various law enforcement officers and we do not have an accurate record of this work, although we know it was very haphazard and limited. In the ten year operation of this law we have had 405 investigations and 11 court cases with 116 convictions ten found not guilty and 10 not indicted, and ten court cases dismissed. These cases have been against the unlicensed, the chiropractors, the osteopaths, and sorry to say against some medical men. In 1923 a law

162 osteopaths and 493 chiropractors registered. In 1937 we had 160 osteopaths and 398 chiropractors registered. But this doesn't tell the whole story, as during the years from 1922 to 1927 we averaged thirty-nine new chiropractic licenses and eight and one-half new osteopathic licenses a year, while in the ten years of the basic science law we have averaged 41 new osteopathic and 14 new chiropractic licenses a year. From this you can see that investigations and prosecutions have been regularly carried out and under the supervision of the Minnesota State Board of Medical Examiners, cultists have decreased and better care has been given the sick. The doctors like this law, the public seems satisfied, prosecutions and investigations have been ably carried on, and cultists have decreased. So we feel that the tenets of a public health law have been fulfilled.

## DISCUSSION

DR HAROLD RYPINS, Albany, N. Y. At other times I have had occasion to take issue with the proponents of the basic science law, but over a period of years I have come to learn that in some jurisdictions there is a great need for such a law. In the few states where there is no legislation authorizing the practice of chiropractors, naturopaths and similar cultists, I believe that a basic science law is unnecessary. However, in the majority of states where legislation does authorize cult practice, I think the evidence is cumulative that the value of the basic science law is sufficient to overcome its nuisance value. However, it is not necessary to have a basic science law in order to have an annual registration, in order to have funds for enforcement, or in order to have adequate enforcement. In New York State, where we have no basic science law, I believe we have other statutes under the medical practice act which are comparable to those that are working so efficiently in Minnesota. The proponents of the basic science law in states where cultists have been authorized to practice make out an excellent case for the law and that the administration of this law in the hands of such men as Dr Du Bois has done much to break down any former opposition.

## Medical Examinations and Licensure

## COMING EXAMINATIONS

## STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in *THE JOURNAL* April 16 page 1309.

## NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS. *Parts I and II*. Examinations will be held in all centers where there is a Class A medical school and five or more candidates who wish to write the examination. May 9-11 (limited to a few centers) June 20-22 and Sept. 12-14. Ex. Sec. Mr. Everett S. Elwood, 225 S. 15th St. Philadelphia.

## SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY. *Oral examinations for Group A and B applicants* will be held at San Francisco June 13-14. Sec. Dr. C. Guy Lane, 416 Marlboro St. Boston.

AMERICAN BOARD OF INTERNAL MEDICINE. *Written examination* will be held at various centers of the United States and Canada Oct. 17. *Final date for filing applications is Sept. 1*. Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Suite 1210, Des Moines, Iowa.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY. *General oral clinical and pathological examinations for all candidates (Groups A and B)* will be conducted in San Francisco June 13-14. Sec. Dr. Paul Titus, 1015 Highland Bldg. Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY. San Francisco June 13. Washington, D. C. Oct. 8. Oklahoma City, Nov. 15. *All applications should be filed immediately and case reports in duplicate must be filed not later than sixty days before the date of examination.* Sec. Dr. John Cretin, 3-20 Washington Blvd. St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. Chicago June 10-11. Sec. Dr. Fremont A. Chandler, 6 N. Michigan Ave. Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY. San Francisco June 10-11. Sec. Dr. W. P. Wherry, 1500 Medical Arts Bldg. Omaha.

AMERICAN BOARD OF PATHOLOGY. Philadelphia May 5-6. Sec. Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS. New York City May 3-4. San Francisco June 12. Detroit, October. Rochester, N. Y., November and Oklahoma City, November 15. Sec. Dr. C. A. Aldrich, 723 Elm St. Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY. San Francisco June 11. Sec. Dr. Walter Freeman, 1028 Connecticut Ave. N. W. Washington, D. C.

AMERICAN BOARD OF RADIOLOGY. San Francisco June 10-12. Sec. Dr. Earl H. Kirklin, 102-110 Second Ave. S. W. Rochester, Minn.

AMERICAN BOARD OF UROLOGY. San Francisco June 11-13. Sec. Dr. Gilbert J. Thoma, 1009 Nicollet Ave. Minneapolis.

## Book Notices

**Intern Education and Supervision.** Prepared by a Joint Committee of the Committee on Medical Education of the Ontario Medical Association, Committee on Medical Education of the Canadian Medical Association and Department of Hospital Service of the Canadian Medical Association. Paper, Pp. 44. Toronto: Canadian Medical Association, Department of Hospital Service. [n. d.]

"The internship has become a very essential part of the clinical preparation of the student in medicine." "The employment of interns implies definite obligations on the part of both the interns and the hospital and its staff." "From the viewpoint of the intern he is there to learn, and he is giving one or more years of his time and is serving with little or no compensation beyond his maintenance. The hospital and its staff therefore should provide adequate facilities for clinical and laboratory training and should give the work of the intern proper professional supervision." These quotations from the introduction to this booklet fairly describe its scope and purpose. Among the topics treated are the purpose of the internship, the medical staff should be intern minded, the induction of interns to their new duties, programs for the instruction of interns, facilities necessary for the interns' work, affiliations with other institutions for special services, the medical library, postmortem examinations, outpatient department, history taking, staff meetings, the social aspects of medical care, medical ethics, and supervision of the interns' health. There is also a discussion of the supervision of intern training and its relationship to medical licensure. This booklet should prove invaluable to hospitals contemplating the establishment of an intern service.

**Practical Birth Control. A Guide to Medically Approved Methods for the Married.** By Rita Irwin and Clementina Paolone, M.D. Cloth. Price \$1.75. Pp. 172 with 5 illustrations. New York: Robert M. McBride & Company, 1937.

In the preface the authors discuss frankly their attitude on the controversial subject of birth control. They feel that before deciding on pregnancy any woman with diseases of the general system—serious heart or kidney conditions, diabetes, tuberculosis—should consult a physician. The list of these diseases may be increased by including nervous and mental diseases or insanity. Therapeutic contraception in their opinion is warranted for medical reasons when the examination indicates repeated difficult deliveries and when defects and deformities exist. The well known argument that pregnancies should be spaced receives attention, the authors venture the statement that "three babies die who are born less than two years after the last child for only two who die when the interval is longer." Such questions as the age of the mother and the economic question as to the number of children that may be cared for are also considered leading up to the classic guide to parenthood. "The wise mother and father will plan to have as many children as can be safely carried, safely borne and adequately reared." From this point on the authors launch into the subject in typical pedagogic manner, giving the definition of birth control and the history of contraceptive practices to the present time.

In common with many books addressed to the public, the authors rather 'talk down' to the readers. The book, however, does contain information, particularly on how birth begins, that is well epitomized and may be a good source of reference for physicians who wish to cite references to persons contemplating marriage. The discussion of unreliable or harmful methods may be of value to any physicians who wish to impart information on therapeutic contraception, although the figures quoted in some cases lack confirmation. The authors point out that the majority of the medical profession condemn the rhythm method as unreliable and join the chorus of others who state that its effectiveness has not been proved by scientific research.

It is interesting to note that the use of condoms is among the partially reliable methods. This is based on the work of Loge published some years ago who asserted that 45 per cent of them had imperfections. Some of the statements which are made are subject to question particularly when it comes to percentages of failures. The authors feel that the use of chemicals or spermicidal suppositories and jellies alone, always

involves the element of chance. The approved method is the jelly-pessary procedure. Rather naive is the last sentence of the discussion on the approved method.

From what has been said about the contraceptive measure approved by medical leaders, it is evident that the pessary jelly method is harmless and reliable can be prescribed in all cases where birth control is medically indicated except under unusual circumstances and is satisfactory from the point of view of personal considerations of wife and husband. Proof has been advanced that the method has been successful in preventing pregnancy 93.97% of the time.

The authors emphasize the value of consulting a physician but continue that if one would rather not go to the regular physician one may obtain information from the American Birth Control League concerning physicians competent to give advice. Reference is also made to lay clinics, contraception clinics and finally warning against commercial clinics, promoted in the interest of proprietary products. In the latter class, of course, one finds much quackery.

All in all the book is one that may be read with profit by those who are entitled to information on this subject. It is clearly printed and is not too long a discourse. The authors are to be commended in their desire to be particularly fair and not too enthusiastic on this subject.

*Lehrbuch der biologischen Heilmittel*. Von Dr. med. Gerhard Madaus. Abteilung I. Heilpflanzen. Bande I, II und III. Registerband. Paper. Price 92 marks per set. Pp. 902, 903, 1884, 1885, 2864 with 1100 illustrations. 144 Leipzig. Georg Thieme, 1938.

This treatise is perhaps the most extensive and complete work on medical plants ever published in any language. The author has compiled in systematic and readily accessible form information on all the common plants used in therapy. The descriptive sections are unsurpassed, in all some 444 plants, parts of which are or have been included in various pharmacopoeias and dispensaries, are described in detail. The botanic name and its etymology are given, the lay designations in all or most of the languages of Europe (and even in a few of the dialects) are set down in addition. A map showing the distribution of the plant is included in each case, followed by an excellent halftone or colored illustration of the plant itself. Botanic and historical data are given, followed by a discussion of the pharmacologic actions and therapeutic uses. Typical prescriptions containing the drug are set down at the end of each description. Though some of the general material will be chiefly of historical interest, other parts are devoted to valuable discussions of recent developments in phytochemistry and the like. Especially useful are the sections devoted to the occurrence in plants of various chemical substances of pharmacologic interest. References to the literature, ancient and modern are given in profusion. An extensive index in a separate volume completes the work, this index is divided into four sections: Latin botanic names, common German designations, chemical substances and therapeutic index. These books, representing the culmination of a lifetime of labor devoted to the subject by the author, are invaluable for reference.

*Food Technology*. By Samuel C. Prescott, Sc.D., Dean of Science and Health Department of Biology and Public Health, Massachusetts Institute of Technology, and Bernard E. Proctor, Ph.D., Associate Professor of Food Technology and Industrial Biology, Massachusetts Institute of Technology. Cloth. Price \$5. Pp. 630 with 70 illustrations. New York & London: McGraw Hill Book Company Inc., 1937.

This book constitutes a reference work covering many phases of food technology which have not heretofore been generally available to the average person. The names of the authors have long been associated with scientific contributions to the processing of foods and the book represents the fruition of many years of experience. There are twenty-two chapters which provide technical information regarding the commercial preparation of the most important foods of both plant and animal origin. Wheat, corn and minor cereals, vegetables, fruits, sugars, meat, fish and poultry products, milk and dairy products, spices, condiments, vegetable oils and fruit juices are discussed in detail. There are also chapters covering adequately in general terms the commercial processes of baking, canning, refrigeration and dehydration. The book tells all about how foods are produced and prepared for the market and it tells the reasons for each process. The book should be valuable to food

manufacturers and all those whose work is concerned with supervision or inspection of food supplies. Although it contains considerable technical information, it is written in an understandable style. The authors state that a more complete technical discussion of certain of the food industries is contemplated in the near future.

*The Human Body*. By Logan Clendening, M.D. Third edition. Price \$3.75. Pp. 443 with 106 illustrations by W. C. Shepard and J. L. Beronius and from photographs. New York: Alfred A. Knopf, 1937.

Since its first publication, some 200,000 copies of this book have been distributed to American readers. In his preface Dr. Clendening points out that he has revised almost every page and that the chapters on nutrition and the ductless glands have particularly needed complete recasting to bring them into line with the rapid progress that is being made in these departments. He also added a separate chapter on the infectious disease. His philosophy on medical matters has not considerably changed so that the original philosophy and a number of the original jokes still remain. The book is illustrated mostly with line drawings taken from illustrations in various medical works. The style of the author and his humanness make his book of the human body the attractive work that it is. His chapter on the relations of the mind to the body is a forthright and honest analysis of the power of suggestion and its effects on human beings, which would overcome a good deal of superstition and quackery if it was more widely read and distributed. For a general public audience, the chapters on pathologic changes and on tumors might have been more simplified. For instance, the author says "In the internal organs the result of thrombosis or of an embolus is an infarct. An infarct is an area of tissue which has undergone or is undergoing necrosis, more or less complete as a result of arterial thrombosis to the part." Notwithstanding the fact that he has previously defined thrombosis, embolism, infarct and necrosis, this statement could have been written in more understandable English. Nevertheless, even with these slight faults, the book merits even greater circulation than it has already had.

*Volume Jubilaire en l'honneur de Monsieur Louis E. C. Dapples* docteur en droit de l'Université de Lausanne, président du Conseil d'administration de Nestlé et Anglo-Swiss Holding Company Ltd pour son soixante-dixième anniversaire. Boards. Pp. 804 with illustrations. Nestlé & Anglo-Swiss Holding Co. Ltd, 1937.

Louis Dapples was president of the board of management of the important world-wide Anglo-Swiss Holding Company, Ltd. This book was intended to be a jubilee volume in honor of the seventieth anniversary of the company president. It might be considered instead as a memorial tribute, the distinguished financier died just before the book was published. The volume consists of numerous tributes showing the extent of Mr. Dapples' activities and the esteem in which he was held by his business and professional associates. The bulk of the volume, however, consists of scientific and medical papers contributed by French, German, Italian, Belgian, Swiss, English, Spanish, Netherlands and American investigators. Twenty-four papers from medical institutions, including reviews, case reports, laboratory and clinical studies, and fifteen papers from the different Nestlé laboratories are provided. The book is a fitting tribute to the man and to the great commercial organization whose destiny through many troublous years he successfully guided.

*Lectures on the Epidemiology and Control of Syphilis, Tuberculosis and Whooping Cough and Other Aspects of Infectious Disease*. By Thorvald Madsen, M.D., Director of the State Serum Institute of Denmark. Copenhagen: The Abraham Flexner Lectures Series Number Five. Published for Vanderbilt University. Cloth. Price \$3. Pp. 216 with illustrations. Baltimore: Williams & Wilkins Company, 1937.

The Abraham Flexner lectureship was established in 1927 at the Vanderbilt University School of Medicine by Mr. Bernard Flexner of New York. The income is used to secure a lecturer at intervals of two years, some eminent physician or scientist who is enabled by the terms of the gift not only to deliver a course of lectures but also to become a member of the medical faculty for a period of two months. The fifth and most recent lecturer in this series was Dr. Thorvald Madsen, who is director of the State Serum Institute of Denmark, Copenhagen, and chairman of the Health Committee of the League of Nations.



The five formal lectures delivered by him are now republished in book form to reach, it is hoped, a wider audience. The first is on the control of venereal disease in Denmark with special reference to syphilis, the second on the mechanism of bacterial infection, the third on tuberculosis in Denmark, the fourth on the influence of seasons on infection and the fifth on whooping cough. In each of these fields Denmark, and especially the investigators connected with Madsen's Serum Institute, have contributed pioneer investigations. Each lecture forms in itself a brief but scholarly treatise on the subject, and it would seem that no one who purports to keep an authoritative stand in any one of these fields can afford not to avail himself of the advantages and pleasure attendant on reading them.

**Medicine Essentials for Practitioners and Students** By G E Beaumont M A D M F R C P Physician to the Middlesex Hospital Third edition Cloth Price 21s Pp 780 with 74 illustrations London J & A Churchill Ltd 1937

For this edition the articles on several subjects, including pneumonitis, arachnoiditis, Niemann-Pick disease and barbiturate poisoning, have been rewritten. Several therapeutic additions have been made, including the use of protosil, congo red, benzedrine and gold salts. Many other sections have been altered or revised. The book does not include sections on psychologic or dermatologic medicine, but even with those omissions the 700 odd pages are scarcely enough for adequate discussions of the remaining diseases—in fact, some sections are scarcely more than catalogues. The book suffers from the obvious necessity of discussing many diseases in limited space, and much essential information about many diseases has not been included. To beginning medical students, however, whose necessities require only the more prominent features of a large number of conditions, it may be useful. It seems doubtful whether it will replace in this country any of the excellent medical textbooks of indigenous origin.

**A Dissertation on Acute Pericarditis** By Oliver W Holmes Boards Price \$7 50 Pp 39 Boston Welch Bibliophilic Society 1937

The Welch Bibliophilic Society here makes available an essay by Oliver Wendell Holmes, written in three days as a thesis in connection with the receipt of the M D degree from Harvard in 1836. It is published without any correction of spelling, punctuation or other editing. The essay was not previously published and has been unnoticed in the archives of the Boston Medical Library until the present time. It is a model for a medical essay revealing in spots the humor of its distinguished author. Particularly witty was the selection as the opening quotation of the following "The heart is deceitful above all things"—Jeremiah.

**Microbiology in the Preservation of Animal Tissues** By R B Haines B Sc Ph D Department of Scientific and Industrial Research Food Investigation Special Report No 45 Paper Price 6s cents Pp 85 with 20 illustrations New York British Library of Information London His Majesty's Stationery Office 1937

This little brochure outlines under three headings the problems connected with the preservation of meat. The first deals with how bacteria gain access to tissues. The second is concerned with some aspects of the physiology and biochemistry of bacteria and of the tissues of the host. The third part takes up the control of infection and the growth of bacteria, fungi and yeasts. There is an appendix containing a description of methods and apparatus for investigations on the preservation of meat. There is a bibliography containing 261 references. The author points out that successful storage of animal tissues is primarily an exercise in applied microbiology.

**The Essentials of Pharmacology Materia Medica and Therapeutics for Medical Students** By D M Macdonald M D F R C P E Cloth Price 7s 6d Pp 279 London Henry Kimpton 1938

This small book is intended to be a prescriber's handbook to enable him to conform with the British pharmacopoeia. It may also serve as a student's textbook most especially for the purpose of brief review. A feature of particular interest in connection with each of the more important drugs is the item of prescribing note, which suggests suitable methods of administration and of disguise. As is characteristic of our British confreres the old system of weights and measures is employed exclusively and the attempt is made throughout to inculcate prescription writing in Latin.

## Miscellany

### THERAPEUTICS AND PROPHYLAXIS OF MALARIA

#### Conclusions of Malaria Commission of the League of Nations

In 1935 the Malaria Commission of the League of Nations arranged for experiments to be made on the treatment and prophylaxis of malaria with synthetic drugs and with quinine so as to compare their efficacy. These experiments were conducted according to a plan which had been prepared beforehand. They covered 12,288 subjects and were carried out in Algeria, Italy, the Federated Malay States, Rumania and the Union of Socialist Soviet Republics under the direction of Prof Edmond Sergent, Professor Bastianelli, Dr Neave Kingsbury, Professor Ciuca and Professor Sergueff, respectively.

The commission has drawn up the text of its fourth general report on the basis of lessons to be learned from these experiments. It represents the unanimous views of the commission and will shortly appear in the Bulletin of the Health Organization. The annexes will include an account of the experiments, a bibliographic review and the text of the observations made by the members of the Malaria Commission.

Following are the conclusions of the report.

#### ACTION OF QUININE AND OF SYNTHETIC PRODUCTS ON THE MANIFESTATIONS OF MALARIAL INFECTION

**Quinine**—A minimum daily dose of 0.5 Gm of quinine hydrochloride sometimes suffices to cause a temporary disappearance of the trophozoites of *Plasmodium vivax*, but a mean daily dosage of 1 Gm for from five to seven days is often necessary to cause the trophozoites to disappear (on an average on the third day) and not to make their reappearance in the peripheral blood until after a latent period of varying length, in the course of the first relapse. In quartan (*P. malariae*) the same effects are usually obtained. In infections with *P. falciparum* the average effective daily dose should be fixed at about 1.3 Gm to produce analogous results. In some countries it is necessary to use 2 Gm to obtain a rapid effect on the clinical attack and on the parasites. With the usual dose of 1 Gm the trophozoites generally disappear one day later, on the average, than in the case of *P. vivax*, sometimes their resistance continues even longer.

Quinine, in the doses indicated, exercises its parasitocidal activities on the young forms of *P. vivax* and *P. malariae* capable of producing gametocytes and also on fully developed gametocytes. On the fully developed gametocytes of *P. falciparum* quinine has only a slight action, but it also impedes the formation of the pregametocytes of this species. It may thus be regarded as directly schizontocidal and indirectly gametocidal in the case of *P. falciparum*.

On acute clinical symptoms of primary infection quinine, in the indicated doses, has a definite action from the third day onward (second paroxysms of fever) in benign tertian, its action is less reliable or less rapid, according to the strain or *P. falciparum* concerned on attacks of malignant tertian, which often continue until the fifth dose (third or fourth paroxysm).

On frequency of relapses in general, quinine has a marked effect which is, however, influenced by individual factors and by the strain of parasite. The treatment of primary *P. vivax* or *P. malariae* infections with quinine in the usual doses (1 Gm daily) is followed by relapses in a proportion of individuals which may be as high as 50 per cent.

Action of quinine on splenomegaly, when suitable treatment is applied in each attack, has proved of real efficacy in endemic regions, especially among children. It is but transient, however, if the community concerned is subject to a high proportion of relapses or is exposed to frequent reinfections.

Quinine treatment with the usual doses does not affect the patient's general condition adversely and generally has no depressive or toxic effect. If the period of administration is limited to the strictly necessary number of days. In such a case there is no good reason for thinking that this treatment hinders the processes of immunization but ill effects may occur when treatment is unnecessarily protracted.

**Atabrine**—In daily doses of 0.3 Gm (for adults) atabrine has a slightly more rapid action on *P. vivax* trophozoites than quinine in the usual dose of 1 Gm. The trophozoites disappear on an average after the third dose, and in some cases even after the second. This parasitocidal action appears to continue for a longer period in that the phase of latency of the disease (absence of clinical symptoms) is established more certainly and lasts longer after the end of treatment with atabrine than with quinine. On the trophozoites of *P. malariae*, the action of atabrine is of the same nature. On the trophozoites of *P. falciparum* atabrine is equally in advance of quinine in certain cases, but the differences between the strains of parasites prevent the drawing of uniform conclusions. The trophozoites of *P. falciparum* disappear from the peripheral blood after the fourth dose of atabrine in 90 per cent of cases.

Action of atabrine on the gametocytes is of a similar nature to that of quinine. It has no effect, from the point of view of devitalization, on the gametocytes of *P. falciparum*. But the action on gametocytes already present in the blood is perhaps slightly more marked than that of quinine, particularly as regards the gametocytes of *P. vivax* and *P. malariae*.

Action on clinical symptoms of an acute attack is marked, both in benign tertian and in malignant tertian. In some endemic regions, where there may be special strains of *P. falciparum*, the therapeutic action of atabrine is more energetic on malignant tertian than on benign tertian but, in other cases, the contrary seems true. This is why some practitioners and malarialogists in tropical countries prefer to use quinine during the first days of the acute attack and to continue with atabrine thereafter. In benign tertian the fever nearly always falls after the first three therapeutic doses of atabrine—that is, by the second attack. In malignant tertian the fever falls almost invariably by the third attack.

Action of atabrine on relapses is slightly more effective than that of quinine, especially in the case of benign tertian and of certain strains of malignant tertian.

The spleen rate in communities treated with atabrine seems to decrease more slowly than in communities treated with quinine, but the effects of the drug continue to be felt for a longer time during the observation period after the end of the treatment, the decrease in the percentage of enlarged spleens continues longer, and the return of the splenic index figures to their former high level occurs a little later.

Action of atabrine on the general condition of patients seems to be determined by factors which, after this form of treatment, are still not entirely known, that is, by the action of the drug on the organic defenses in general and on the processes of immunization. The yellow coloration of the skin produced by atabrine is a disadvantage, especially during prolonged prophylactic treatments.

**Plasmochin**—The action of plasmochin on the trophozoites of *P. falciparum* is almost nil. It acts to some extent on the trophozoites of *P. vivax* and especially on those of *P. malariae*. With small nontoxic doses of plasmochin associated with the usual doses of quinine or atabrine, better results are sometimes obtained on the trophozoites of *P. vivax* and even of *P. falciparum*.

Plasmochin acts on gametocytes of the three species, but especially on those of *P. falciparum*, which are practically unaffected either by quinine or by atabrine. In minimum doses of 0.02 Gm, plasmochin devitalizes the gametocytes of *P. falciparum* and at the same time diminishes their numbers.

There is no advantage in using plasmochin alone for the treatment of the clinical symptoms of an acute attack in any of the forms of malarial infection.

Plasmochin has a definite effect on the frequency of relapses of benign tertian or quartan. In association with quinine or atabrine, or administered after either of these two drugs, it is to a marked degree effective in preventing relapses in benign tertian (except perhaps in the case of a few particular strains) and quartan, and appears similarly to reduce the frequency of malignant tertian relapses.

We do not possess sufficient data to assess the action of plasmochin alone, used either therapeutically or prophylactically, on the state of the spleen in malarial communities for it is nearly always administered together with other drugs.

The small doses of plasmochin (0.02 Gm, for example) are being used seem to have no seriously depressing effect on the general state of the patient. That the prolonged use of plasmochin may exert some influence on the formation of hemoglobin must not be overlooked.

**Quinine-Atabrine, Quinine-Plasmochin and Atabrine-Plasmochin Combinations**—The few experimental observations that have been published give no indication that there is any advantage in combining quinine and atabrine for purposes of treatment.<sup>1</sup> Further clinical research is required to determine the effects of these two drugs when administered one after the other (usually quinine first and atabrine afterward) in the treatment of acute attacks of certain kinds of infection, especially *P. falciparum*.

The combined use of quinine with plasmochin produces less frequent and less intense toxic symptoms than that of atabrine with plasmochin. The simultaneous use of quinine and plasmochin (or example, up to 0.02 or even 0.03 Gm of plasmochin daily for short treatments) therefore does not involve any particular contraindications. Certain authors recommend however that, whenever possible, the two drugs be administered consecutively. For the treatment of adult groups under observation there is, however, no serious disadvantage to be feared from the simultaneous use of quinine and plasmochin, which more over shortens the duration of treatment.

The association of quinine with plasmochin represents one of the most efficacious methods of treating benign tertian and quartan malaria. Treatment with average doses (from 1 to 1.3 Gm) of quinine plus plasmochin (even only from 0.02 to 0.03 Gm twice a week) greatly reduces (perhaps more than any other method) the number of relapses in benign tertian (except, as already indicated, in the case of certain strains) and in some cases also in malignant tertian.

The simultaneous administration of atabrine and plasmochin appears to aggravate the toxicity of each. It should in any case not be adopted without medical supervision. Consecutive treatment with atabrine first and then with plasmochin in suitable doses (0.3 Gm of atabrine daily for five or seven days followed by 0.02 Gm of plasmochin daily for five days) has no appreciable influence either in reducing the proportion of trophozoites in the blood or on the clinical manifestation. Like the quinine plus plasmochin treatment, this method has the advantage of decreasing and devitalizing the gametocytes, especially those of *P. falciparum*. Moreover, it diminishes the number of relapses, both in malignant tertian and, more especially, in benign tertian and quartan.

#### PRACTICAL SUGGESTIONS FOR TREATMENT AND PROPHYLAXIS

Without presuming to lay down hard and fast rules, the commission believes that it is in a position to give certain indications. Account should, however, first be taken of the following points, on which reservations have been made in the previous pages, with respect not only to the individual treatment of patients but generally also to the application of any therapeutic procedure: (1) the varying reactions of the different parasite strains of the same species and of patients to the drugs, (2) the special indications applicable to the parenteral administration of drugs, (3) the drawbacks of the synthetic products (yellow coloration of the skin by atabrine, toxicity of plasmochin).

**Individual Treatment of Patients**—It is always desirable that the doctor should be in a position to diagnose malaria and to determine the species of parasite concerned by a microscopic examination of the blood.

In ordinary cases of *P. vivax* (benign tertian) infection it is almost immaterial whether quinine or atabrine is employed for treatment of the attack. Plasmochin associated with quinine or atabrine or administered after these drugs has no appreciably useful effect on the attacks but seems to reduce the frequency of subsequent relapses.

The association of plasmochin with quinine or its administration after atabrine, is useful in *P. falciparum* infections on account of its action on gametocytes and relapses.

<sup>1</sup> Professor Podhain in a private communication states that he has recently obtained beneficial effects by this method.

*Treatment in the Field*—Atabrine, when used for collective treatment in daily doses of 0.3 Gm (for adults) for from five to seven days, acts in the same way as quinine in daily doses of from 1 to 1.3 Gm for from five to seven days or more. There is no reason save financial considerations why either quinine or atabrine should be preferred. The manner in which collective treatment is conducted will depend on the intensity of the endemicity, which is itself the resultant of a series of factors: the incidence of malignant tertian infection (*P. falciparum*), the virulence of the strains, the sensitiveness of the strains to the various drugs and the susceptibility of various population groups.

Collective treatment with quinine or atabrine may usefully be accompanied or followed by plasmodium treatment, to diminish the number of gametocytes and the risk of relapses.

The choice of the basic drug for collective treatment should be left to the public administrations or malariologic organizations that undertake or control such treatment and will be guided by local and economic considerations as well as by the preferences of the medical profession and of the population. It should be remembered that the choice of drug, as well as dosage and duration of therapeutic administration, should, so far as possible, be directed toward the achievement of the real aim of mass treatment. This aim is to secure the largest number of complete cures in case of malaria and to reduce to a minimum the risk of anopheline infection, either by direct action on the gametocytes or by indirect action on the parasites generally, thereby effecting an eventual reduction in the number of carriers of sexual forms (gametocyte therapy). It would therefore be wise not to rely on plasmodium alone for this second purpose. These considerations also apply to the choice of the basic drug and the manner of its administration to the community either directly associated with or followed by plasmodium.

There are, however, large malarial areas, especially in the tropics, where such mass treatment is impossible of practical application for various reasons, often financial. Under such conditions it is desirable to provide adequate and easily available treatment for the clinical manifestations of the disease, so that the morbidity, the mortality and the physical incapacitation of the afflicted persons are diminished. Such treatment has very often to be placed in the hands of laymen for distribution, and little or no direct medical supervision is possible. In these circumstances, the cinchona alkaloids appear to be the more suitable drugs.

*Mass Drug Prophylaxis*—This has a twofold purpose: (1) to protect the population undergoing prophylactic treatment from the clinical manifestations of endemic malaria, in order that its working capacity and comparative standard of health may be safeguarded without injury to its preimmunization, even in areas in which it is exposed to repeated reinfection, (2) to reduce in due course, the sources from which the local mosquitoes may be infected.

No prophylactic method, unless applied to disciplined communities under stringent supervision, is capable as yet of attaining these two objects. Special stress should be laid on the desirability and the difficulty of promoting the immunization process in the population, which depends on the degree of tolerance to infection and on repeated reinfection. At the same time one wishes to avoid the risks attendant on the presence and persistence of such latent infections in the community.

Experience has shown, at all events, that useful results can be obtained with daily doses of quinine (0.4 Gm) administered during the whole of the malaria transmission season and even for a few weeks longer. This is also true of biweekly doses of atabrine (from 0.2 to 0.4 Gm a week) administered in certain conditions. With the latter method (biweekly atabrine), which has given encouraging results further trials would be desirable. The daily dose of 0.05 Gm of atabrine recommended for prophylactic purposes has proved inadequate. The harmlessness of quinine makes it a suitable drug for administration by subordinate personnel without constant medical supervision, whereas such supervision is essential in the case of atabrine.

Plasmodium should not be distributed for prophylactic treatment otherwise than under direct medical control. Its use in mass prophylaxis would be justifiable only if administered to a disciplined population which should be kept under constant

medical care. It is useful more especially for the purpose of ultimately reducing the number of gametocyte carriers and arresting the transmission of infection to the anophelids. Plasmodium is certainly the gametocidal agent *par excellence* especially where *P. falciparum* is concerned. But both quinine and atabrine also exercise in the latter case a gametocidal action by destroying the sexual forms in process of development.

The real efficiency of such methods in the field is, moreover, largely dependent on a highly important epidemiologic factor, namely, the children. The proportion of gametocyte carriers is much higher among children than among adults, given the same environmental conditions (village, house, family) in respect of endemicity and anophelism. Children on the other hand, are more difficult to subject to regular treatment, and finally the doses and form of administration of atabrine and plasmodium to children cannot be regarded as finally settled.

*Drug Eradication*—Experience has so far shown that the eradication of malaria from a locality by the curative and prophylactic treatment with the drugs at present available is practically impossible. It is impossible to reach in sufficient time, all the inhabitants of an area or even of a small village. Moreover, while curative and prophylactic treatment may greatly diminish the morbidity, it cannot suppress the parasites in all the carriers.

#### COMMENT

In this report the commission has not considered the question of expenditure entailed by treatment and prophylaxis campaigns, which depends on the price of drugs and the cost of the staff. It would, however, emphasize the great importance of this problem in connection with the choice of drugs to be used for curative or prophylactic mass treatment.

Among those drugs, quinine still ranks first in current practice by reason of its clinical effectiveness and almost complete absence of toxicity, coupled with the widespread knowledge of its use and dosage. As regards the synthetic products, the commission hopes that it has discharged the duty which devolved on it by giving an account of the present state of our knowledge regarding the possible use of atabrine and plasmodium. In certain circumstances as has been shown, these drugs—representing a notable scientific advance—possess a very special value.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Arteriosclerosis, Trauma and Cerebral Hemorrhage**—An automobile backed into Heath a man of 63, bruising his arms. There was no fracture or severe lacerations. He died fifty-six days thereafter from a cerebral hemorrhage. Attributing the death to the accident, the widow brought suit against the driver of the car and its owner. From a judgment for the plaintiff the defendants appealed to the court of appeals of Tennessee, middle section.

There was evidence that Heath had had arteriosclerosis for a number of years and that a few months prior to the accident his systolic blood pressure was from 150 to 160. At the trial, the undisputed medical testimony was that the cause of a cerebral hemorrhage is high blood pressure acting on blood vessels weakened by disease and that such degeneration of the blood vessels is a progressive disease requiring years of time to weaken the blood vessels to the danger point. Arteriosclerosis results from a variety of causes such as senility, overeating, excessive use of tobacco or alcohol and certain diseases of the blood. Medical witnesses for the defendants testified that if by any possibility a trauma could cause a cerebral hemorrhage it would necessarily occur immediately after the injury, not several weeks later. A physician who testified for the plaintiff concurred in this view, testifying that it would be kind of hard to figure how a bruise on the arm could cause apoplexy two months later. While there was some evidence that an injury such as Heath suffered might temporarily,

increase the blood pressure, there was no evidence that, as a matter of fact, his blood pressure was higher at any time after the injury than before.

In view of the variety of causes of arteriosclerosis and high blood pressure, the progressive nature of those diseases and the absence of evidence excluding other causes, the finding by the jury that the cerebral hemorrhage suffered by Heath was caused by the injury inflicted rested, in the opinion of the court, on speculation. The court of appeals therefore reversed the judgment of the trial court, set aside the verdict of the jury, and dismissed the plaintiff's suit—*Willis v Heath* (Tenn.), 107 S IV (2d) 228.

**Evidence Testimony of Physician Based on Medical History as Related by Examinee Inadmissible**—The opinion of a physician, says the Supreme Court of Minnesota, as to a person's condition, based wholly or in part on the history of the case as told to him by that person, is inadmissible in evidence where the physical examination made by the physician is made for the purpose of qualifying the physician to testify as a medical expert. The circumstances under which the descriptive statements of a sick or injured person as to the symptoms and effects of his malady and the opinion of the expert witnesses based thereon are admissible in evidence were stated in *Sund v Chicago, R I & P Ry Co*, 164 Minn 24, 204 N W 628, as follows:

First they must have been made to a medical attendant for the purpose of medical treatment. Second they must relate to existing pain or other symptoms from which the patient is suffering at the time and must not relate to past transactions or symptoms however closely related to the present sickness. Third such statements are only admissible when the medical attendant is called upon to give an expert opinion based in part upon them.

The danger of admitting such testimony is apparent. When a physician is consulted for the purpose of treatment, it may be assumed safely that the patient will tell the truth to the physician since he is interested primarily in being cured. However, when a person goes to a physician for the purpose of qualifying the latter to testify, the natural tendency and inducement would be to the contrary—*Preveden v Metropolitan Life Ins Co* (Minn.), 274 N W 685.

**Workmen's Compensation Acts Employer's Liability for Hospital Expenses in Excess of Statutory Limit**—Finch was injured in the course of his employment. An official of the defendant company, the employer, took him to the plaintiff hospital and instructed the superintendent to admit the workman and to procure a named physician to attend him. Later the employer refused to pay the hospital bill, and the hospital sued the employer. The court of appeals of Tennessee affirmed a judgment in favor of the hospital entered by the trial court, and the employer petitioned the Supreme Court of Tennessee for certiorari.

The employer contended that, since it was operating under the Tennessee workmen's compensation act and since the hospital knew that the workman was its employee, the extent of its liability was \$100, the maximum amount specified in the act that an injured workman can recover from his employer for hospital services. Compensation acts, answered the court, determine the rights of persons to whom such acts are applicable, that is, employers and employees, they do not reach contracts between physicians or hospitals and employers. While the court doubted that there was any express contract between the hospital and the employer in the present case, the court did think there was an implied contract. At common law, when a person secures services to be rendered, whether rendered to himself or to another, there is an implied contract to pay for such services. For reasons of humanity an exception is made generally in favor of a person calling a physician for another. Otherwise a neighbor or stranger might hesitate to call a physician to attend a stricken man unable to make such call himself. This exception, however, does not apply to a person under a legal obligation to supply medical services to another, as was the employer in this case.

The Supreme Court, therefore, affirmed the judgment of the trial court in favor of the hospital—*Weakley County Hospital v Kentucky-Tennessee Light & Power Co* (Tenn.) 107 S IV (2d) 226.

## Society Proceedings

### COMING MEETINGS

- American Medical Association San Francisco June 13 17 Dr Olin W. 535 North Dearborn St Chicago Secretary
- American Academy of Pediatrics Del Monte Calif June 9 11 D Clifford G Grulee 636 Church St Evanston Ill Secretary
- American Association of Genito Urinary Surgeons Atlantic City N J May 24 Dr Henry L Sanford 1621 Euclid Ave Cleveland Secretary
- American Association of Industrial Physicians and Surgeons Chicago June 6 9 Dr Volney S Cheney Armour and Company Union 6 Yards Chicago Secretary
- American Association of Medical Milk Commissions San Francisco June 13 14 Dr Paul B Cassidy 2037 Pine St, Philadelphia Secretary
- American Association of Pathologists and Bacteriologists Atlantic City N J May 3 4 Dr Howard T Kirsner 2085 Adelbert Road Cleveland Secretary
- American Association of the History of Medicine Atlantic City N J May 2 Dr E J G Beardsley, 1919 Spruce St Philadelphia Secretary
- American Bronchoscopic Society Atlantic City N J Apr 30 Dr Lyman Richards 319 Longwood Ave, Boston Secretary
- American Dermatological Association Del Monte Calif June 9 11 Dr Fred D Weidman 36 Hamilton Walk Philadelphia Secretary
- American Gastro-Enterological Association Atlantic City N J May 1 Dr Russell S Boles 1901 Walnut St, Philadelphia Secretary
- American Gynecological Society Asheville N C May 30 June 1 Dr Richard W TeLinde, 11 East Chase St, Baltimore, Secretary
- American Heart Association, San Francisco June 13 14 Dr Howard R. Sprague, 50 West 50th St, New York Secretary
- American Laryngological Association Atlantic City N J May 2 4 Dr James A Babbitt 1912 Spruce St Philadelphia Secretary
- American Laryngological Rhinological and Otolological Society Atlantic City N J Apr 27 29 Dr C Stewart Nash, 277 Alexander St Rochester N Y Secretary
- American Medical Women's Association San Francisco June 17 14 Dr Helen A Cary 1634 N E Halsey St Portland Ore Secretary
- American Neurological Association Atlantic City N J May 2 6 Dr Henry A Riley 117 East 72d St New York Secretary
- American Ophthalmological Society San Francisco June 9 11 Dr Eugene M Blake 303 Whitney Ave New Haven Conn Secretary
- American Orthopedic Association Atlantic City N J May 3 5 Dr Ralph K Ghormley 110 Second Ave S W Rochester Minn Secretary
- American Pediatric Society Dolton Landing N Y June 9 11 Dr H. A. McCulloch 325 North Euclid Ave St Louis Secretary
- American Proctologic Society San Francisco June 11 13 Dr Carl Ro ser 710 Medical Arts Bldg Dallas Texas Secretary
- American Psychiatric Association San Francisco June 6 10 Dr W C Sandy State Education Bldg, Harrisburg Pa Secretary
- American Radium Society San Francisco June 13 14 Dr F W O'Brien, 465 Beacon St Boston Secretary
- American Society for Clinical Investigation Atlantic City N J May 2 Dr J M Hayman Jr 2065 Adelbert Road Cleveland Secretary
- American Society of Clinical Pathologists San Francisco June 9 11 Dr A S Giordano 531 North Main St, South Bend Ind Secretary
- American Surgical Association Atlantic City N J May 2 4 Dr Charles G Mixer 319 Longwood Ave Boston Secretary
- Association for the Study of Allergy San Francisco June 9 10 Dr J Harvey Black 1405 Medical Arts Bldg Dallas, Texas Secretary
- Association for the Study of Internal Secretions San Francisco June 13 14 Dr E Host Shelton 921 Westwood Blvd Los Angeles Secretary
- Association of American Physicians Atlantic City N J May 3 5 Dr Hugh J Morgan Vanderbilt University Hospital Nashville Tenn Secretary
- California Medical Association Pasadena May 9 12 Dr F C Warnsholtz 450 Sutter Street San Francisco Secretary
- Congress of American Physicians and Surgeons Atlantic City N J May 3 4 Dr John T King Jr 1210 Eutaw Place Baltimore Secretary
- Connecticut State Medical Society, Groton June 12 Dr Creighton Barker 258 Church St New Haven Secretary
- District of Columbia Medical Society of the Washington May 4 5 Dr C B Conklin 1718 M St N W Washington Secretary
- Florida Medical Association Miami May 9 11 Dr Shaler Richards 111 W Adams St Jacksonville Secretary
- Georgia Medical Association of Augusta, Apr 26 29 Dr Ed or D Shantis 478 Peachtree St N E Atlanta Secretary
- Hawaiian Territorial Medical Association Honolulu May 20 22 Dr Douglas B Bell Dillingham Bldg Honolulu Secretary
- Illinois State Medical Society Springfield May 17 19 Dr Harold V Camp Lahl Bldg Monmouth Secretary
- Iowa State Medical Society Des Moines May 11 13 Dr Robert L Parker 3510 Sixth Ave Des Moines Secretary
- Kansas Medical Society Wichita May 9 12 Dr C G Munroe West Sixth St Topeka Executive Secretary
- Louisiana State Medical Society New Orleans May 2 4 Dr P T Talbot 1430 Tulane Ave New Orleans Secretary
- Maryland Medical and Chirurgical Faculty of Baltimore Apr 2 Dr Walter Dent Wise 1211 Cathedral St Baltimore Secretary
- Massachusetts Medical Society Boston May 31 June 2 Dr Alexander Begg 8 The Fenway Boston Secretary
- Missouri State Medical Association Jefferson City May 2 4 Dr E J Goodwin 634 N Grand Blvd St Louis Secretary
- Nebraska State Medical Association Lincoln Apr 26 28 Dr P F Adams Center McKinley Bldg Lincoln Secretary
- New Hampshire Medical Society Manchester May 17 18 Dr C. R Metcalf 5 South State St Concord Secretary
- New Jersey Medical Society of Atlantic City May 17 19 Dr Al Stahl 55 Lincoln Park Newark Secretary
- New Mexico Medical Society Santa Fe June 6 8 Dr L B C West 219 West Central Ave Albuquerque Secretary
- New York Medical Society of the State of New York May 9 11 Dr Peter Irving 2 East 103d St New York Secretary
- North Carolina Medical Society of the State of Tennessee May 2 4 Dr T W M Long Roanoke Rapids Secretary

North Dakota State Medical Association Bismarck May 16 18 Dr  
Albert W Skelsey 20½ North Broadway Fargo Secretary  
Ohio State Medical Association, Columbus May 11 12 Mr C S Nelson  
79 East State St Columbus Executive Secretary  
Oklahoma State Medical Association Muskogee May 9 11 Dr L S  
Willour Third and Seminole McAlester Secretary  
Philippine Islands Medical Association Zamboanga City Apr 27 29 Dr  
A S Fernando 817 Taft Ave Manila Secretary  
Rhode Island Medical Society Providence June 1 2 Dr Guy W Wells  
124 Waterman St Providence Secretary  
Society for the Study of Asthma and Allied Conditions Atlantic City  
N J Apr 30 Dr W C Spain 116 East 53d St New York  
Secretary  
Society of Surgeons of New Jersey Hackensack May 25 Dr Walter B  
Mount 21 Plymouth St Montclair Secretary  
South Carolina Medical Association Myrtle Beach May 17 19 Dr E A  
Hines Seneca Secretary  
South Dakota State Medical Association Huron May 9 11 Dr Clarence  
E Sherwood 102½ Egan Ave S Madison Secretary  
Texas State Medical Association of Galveston May 9 12 Dr Holman  
Taylor 1404 West El Paso St Fort Worth Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1927 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (\*) are abstracted below.

### American Heart Journal, St Louis

15 129 256 (Feb) 1938

- Apnea or Convulsions Following Standstill of the Heart Clinical and Experimental Observations P Formyne Amsterdam Holland—p 129  
Electrocardiographic Changes Occurring with Alterations of Posture from Recumbent to Standing Positions L H Sigler Brooklyn—p 146  
Use of Sodium Nitrite for Testing Flexibility of Peripheral Vascular Bed W C Beck and G de Takats Chicago—p 158  
Electrogram of Cardiac Muscle Analysis Which Explains Regression or T Deflection A G Macleod New York—p 165  
Effects of Induced Oxygen Want in Patients with Cardiac Pain R L Levy A L Barach and H G Bruenn New York—p 187  
\*Immediate Effect of Mercurial Diuretics on Vital Capacity of Lungs J B Alsever Syracuse N Y and S A Levine Boston—p 201  
Electrocardiographic Manifestations and Cardiac Effect of Drugs in Vitamin B<sub>1</sub> Deficiency in Rats S Weiss Florence W Haynes and P M Zoll Boston—p 206  
Extra Sounds Occurring in Cardiac Systole F D Johnston Ann Arbor Mich—p 221  
Pericardial Involvement in Coronary Thrombosis Note C F Stewart and K B Turner New York—p 232

**Effect of Diuretics on Capacity of Lungs**—Alsever and Levine present evidence concerning the value of diuretics in improving the respiratory function in patients with cardiac failure. Nine cardiac patients suffering from breathlessness in whom there was no evidence of peripheral edema or in whom the edema was only moderate in degree, were selected. In most instances the diuretic used was 1 or 2 cc of mercupurin (the sodium salt of trimethylcyclopentane-dicarboxylic acid-methoxy mercury-allylamide-theophylline) given intravenously. In some cases a similar amount of salyrgan or a mercupurin suppository was given. The specific effect of the diuresis on the respiratory mechanism was judged by measuring the vital capacity of the lungs just before the diuretic was injected and twenty-four hours later. Definite improvement in the respiratory function took place in every instance. There were eight patients in whom twelve readings were made before and after a diuresis. The average increase in vital capacity was 290 cc. The smallest increase was 125 cc and the largest was 600 cc. The diuretic effect of the injections was manifested by the prompt and decided increase in the urinary output and the loss of weight which took place during the twenty-four hour period. The results illustrate the benefit that may be obtained from diuretics in the distressing symptom of breathlessness entirely apart from the well known effect on edema. It follows that if a diuretic extracts fluid from the engorged capillary bed of the lungs both the amount of the remaining air spaces will increase and the capacity for oxygenation of the blood will improve.

### American J Obstetrics and Gynecology, St. Louis

35 189 372 (Feb) 1938 Partial Index

- Correlation of Endometrial Histology with Clinical Symptoms L W Mason W C Black and R G Gustavson Denver—p 189  
Hemorrhagic Disease of the Newborn C T Javert New York—p 200  
Relation of Labor to Intracranial Injury in Premature Infant W E Studdiford and H P Salter New York—p 215  
Comparative Effects of Pregnancy and Phrenic Nerve Interruption on Diaphragm and Their Relation to Pulmonary Tuberculosis A P McGinty Atlanta Ga—p 237  
Wheat Germ Oil Therapy I Dosage—Idiosyncrasy E Shute London Ont—p 249  
Fetal and Maternal Mortality in Diabetes Edith L Potter and F L Adair Chicago—p 256  
Roentgenographic Study of Superior Strait During Pregnancy Preliminary Report D J Thorp and T Lough Seattle—p 265  
\*Certain Relationships of Calcium in Blood Serum to Calcium Balance and Basal Metabolism During Pregnancy S I Pyle Martha Potgieter and G Comstock Yellow Springs Ohio—p 283  
Chemical Pregnancy Test of Visscher and Bowman W J Messinger M H Presberg and M D Fellows Rochester N Y—p 295  
\*Results with Visscher-Bowman Pregnancy Test R D Dunn and F J Northway San Francisco—p 298  
\*Antutrin S Cutaneous Test for Diagnosis of Pregnancy I Gersh, Denver—p 301  
\*Study of Cold Test in Normal and in Toxemic Pregnancy D E Reid and H M Teel Boston—p 305  
Melanoma of the Female Urethra Q U Newell and W C Scrivner St Louis—p 328  
Gonococcal Peritonitis in Prepubescent Females B Notes Washington D C—p 331

**Calcium in Blood Serum, Calcium Balance and Metabolism During Pregnancy**—During the last four years, Pyle and his co-workers have observed the three day test samples of mineral balances during pregnancy. The subjects were to weigh their food and to eat the same kind and quantity for three successive days. On the third day the food was sampled and collections of the twenty-four hour excretion of urine and the feces from the corresponding twenty-four hour ingestion were made. On the morning of the fourth day, blood was drawn for serum calcium immediately after the basal metabolic rate was determined. The level of calcium in the food has little effect on the amount of calcium carried in the serum. The fraction of calcium possibly available to the fetus is affected by the oxygen consumption of the mother. This fraction also contains calcium filtered from the maternal system by the kidney. Measuring the serum calcium level alone shows little regarding the ingestion level or the level of calcium in the urine during pregnancy. Serum calcium determinations showed less about maternal weight gain during pregnancy than urinary, food or fecal calcium did. Urinary calcium showed more about oxygen consumption than the level in serum, food and feces did. The fecal level was the most sensitive indicator of weight gain during pregnancy for these subjects, the urinary level being the most sensitive indicator of oxygen consumption.

**Results with Visscher-Bowman Pregnancy Test**—Dunn and Northway tested 395 urines by the Visscher-Bowman method for the determination of pregnancy. Correct reactions were obtained in 84.8 per cent of 250 known pregnancies, 87.6 per cent of sixty-five suspected pregnancies and 54.8 per cent of sixty-two nonpregnancies. Urines of low specific gravity or containing unusual amounts of catabolic reducing agents tend to give false reactions. The test in its present form is subject to too high a percentage of error to replace the Friedman and Aschheim-Zondek tests.

**Gonadotropic Substance for Diagnosis of Pregnancy**—Gersh carried out the gonadotropic substance cutaneous test for pregnancy on 113 persons. Fifty were normal men and non-pregnant women, forty-eight were known cases of pregnancy of a duration of two or more months and fifteen were from one to nine days post partum. The results of the reaction show the test to be entirely unreliable.

**Study of the "Cold Test" in Normal and in Toxemic Pregnancy**—Reid and Teel performed the "cold test" at intervals of from four to six weeks throughout pregnancy and the puerperium on thirty-four normal patients. The results on normal and toxemic pregnant patients fail to support the suggestion that the test might reveal impending toxemia. Nor did they find the test of practical value in the differential diagnosis of pregnancy toxemias. The marked variations in response in



different patients of each clinical group, as well as considerable differences in the response of the same patient at different times, would exclude any value for the test in differential diagnosis for any individual case

### Am J Roentgenol & Rad Therapy, Springfield, Ill

39 161-320 (Feb.) 1938

- The Unity of Medicine A C Christie Washington D C—p 161  
Adaptation as Factor in Cure of Cancer by Radiation J Ewing New York—p 165  
Reminiscences of a Radiologist H K Pancoast Philadelphia—p 169  
\*Air Myelography Substitution of Air for Lipiodol in Roentgen Visualization of Tumors and Other Structures in Spinal Canal B R Young and M Scott Philadelphia—p 187  
\*Roentgenologic Aspects of Mastoiditis R Schillinger Brooklyn—p 193  
Maxillary Sinusitis Associated with Pneumonia as Seen in the Winter of 1936 B F Donaldson and A Bachman New York—p 202  
Unusual Case of Bilateral Pulmonary Apical Dermoid Cysts L F Craver and J V Blady New York—p 205  
Calicified Guinea Worm (*Dracunculus Medinensis*) Report of Five Cases Arline M Beal Guntur South India—p 210  
Idiopathic Familial Generalized Osteophytosis E Freund, Los Angeles—p 216  
Roentgenologic Studies of Megacolon Treated by Sympathectomy E M Van Buskirk Fort Wayne Ind—p 228  
\*Effect of Irradiation on Normal Blood Cells as Determined by Blood Count K Kornblum, F Boerner and S G Henderson Philadelphia—p 235  
Roentgen Treatment of Lymphadenoma N S Finzi, London England—p 261  
Thymus Effect of Atrophy of Thymus Following Roentgen Irradiation Notes on Changes Observed on Body Growth the Gonads Pituitary and Adrenals J Gershon Cohen H Shay S S Fels T Meranze and D Meranze Philadelphia—p 263  
Treatment of Subacute and Chronic Sinusitis by Roentgen Radiation H B Smith and A C Nickel Bluffton Indiana—p 271  
Simultaneous Cross Radiation M A Loebell Zanesville, Ohio—p 274  
Roentgen Ray and Electrical Protection with Reference to Roentgen Tubes M J Gross Chicago—p 278  
Diffraction Studies on Human Bone Preliminary Report L Reynolds Henrietta S Hayden and K E Corrigan Detroit—p 286

**Air Myelography**—Young and Scott have used subarachnoid injections of air at the Temple University Hospital since January 1936 in any patient suspected of having a tumor of the spinal cord or any other space-taking lesion of the spinal canal. Their studies emphasize the accuracy of the method, in each of their thirteen cases the exact level of the lesion, demonstrated by air myelography, was verified by laminectomy. The efficacy and simplicity of the procedure cannot be doubted when a complete block exists. Practically this amounts to a lumbar puncture, with injection of a few cubic centimeters of air, and roentgenograms of the spine taken with the patient in the sitting posture. The trapped air is easily visualized on the roentgenogram and the level is thus established. The lumbocaudal sac is easily filled with air and is clearly delineated by it. Nucleus pulposus (or cartilaginous disk) herniations may be discovered if this is done, so there is no reason for the use of iodized oil for this condition unless air studies are negative. The diagnosis of a partial block entails no more work than does a complete one if sufficient air is trapped below the block to see it, but if the air passes into the cranium it is still possible to visualize the lesion at another sitting by replacing spinal fluid with air through cisternal puncture with the patient in the Trendelenburg position. There is practically no pain or untoward effect when from 3 to 6 cc of air is used. When large amounts are used to outline the lumbocaudal sac or the entire spinal canal the patient should be kept in the Trendelenburg position (from 20 to 30 degrees) for six hours and flat on the back for twelve hours and should be gradually elevated to the erect position over a period of forty-eight hours. If this procedure is followed, little headache results. It is not essential that roentgenograms be taken immediately after the injection of air if the patient is kept in the Trendelenburg position, as air has been found in the subarachnoid space below a complete block for as long as one week after injection.

**Roentgenologic Aspects of Mastoiditis**—Schillinger believes that if prophylaxis against mastoiditis is to be practiced it must be applied to every case of suppurative otitis media and that the only available and effective prophylactic agent is roentgen irradiation. In small doses it has a wide margin of safety is prompt in its action and produces no bad effects. An exposure dose of from 20 to 50 roentgens administered on about the

seventh day of suppuration and repeated at intervals of two or three days for a total of three or four exposures, will materially reduce the incidence of mastoiditis.

**Effects of Irradiation on Normal Blood Cells**—To determine the effect of therapeutic irradiation on the erythrocytes and hemoglobin of the circulating blood as revealed by the red cell count and hemoglobin determination and the effect of irradiation on the leukocytes as determined by the white cell count, Kornblum and his associates performed such studies before and after irradiation on 100 unselected patients with benign and malignant conditions, the latter predominating. Roentgen and radium irradiation as applied therapeutically has no significant effect on the red cell count or the hemoglobin content of the blood. Anemia alone is not a contraindication to radiation therapy. Therapeutic irradiation tends to lower the leukocyte count. The greatest decrease occurs in the lymphocytes and then in the neutrophils, with the monocytes and eosinophils being the least affected. There was no apparent relationship between the effect on the leukocytes and the part of the body treated, the amount of irradiation and the period of time during which the patient was irradiated. About five weeks is required after irradiation for the count of the various leukocytes to return to the preirradiation level. A count which does not recover in a period of eight weeks is suggestive of an unfavorable prognosis. Daily intramuscular injections of 2 cc of liver extract did not prevent the depressing effect of irradiation on the leukocyte count. Irradiation leukopenia does not prevent an increase in the number of leukocytes when infection occurs, but this increase is not as great as occurs in nonirradiated individuals. Intravenous injection of typhoid vaccine, which normally causes a sharp rise in the leukocyte count, produced no significant effect in patients receiving or immediately following a series of radiation treatments. Several months after the cessation of therapy a characteristic response was obtained. Injections of liver extract or typhoid vaccine afford a means of determining whether the blood of an irradiated patient has sufficiently recovered to permit a second series of treatments. It seems inadvisable to permit the neutrophils to drop below 1,000 and the lymphocytes below 250 cells per cubic millimeter of blood. From a practical point of view the effects of irradiation on normal blood, as determined by the blood count, are of little clinical significance.

### American Journal of Surgery, New York

39 227-476 (Feb.) 1938

- Tuberculous Glands of Neck in Children L Barrington Ward London England—p 229  
Congenital Branchiogenic Anomalies Report of Eighty Two Cases W E Ladd and R E Gross Boston—p 234  
\*Surgical Treatment of Chronic Pulmonary Suppuration in Children with Especial Reference to Bronchiectasis T H Lanman Boston—p 249  
Management and Treatment of Empyema in Children G C Penberthy and C D Benson Detroit—p 267  
Early and Late Treatment of Burns in Children D W MacCollum Boston—p 275  
Compound Fractures in Childhood F Beekman New York—p 317  
Osteomyelitis in Children F R Ober Boston—p 319  
Fractures and Dislocations Involving the Elbow Joint in Children D E Robertson Toronto—p 327  
\*Primary Bone Tumors in Children B L Coley New York and R L Peterson Coeur d'Alene Idaho—p 334  
Intraspinal Tumors in Infancy and Childhood F D Ingraham Boston—p 342  
Congenital Hypertrophic Pyloric Stenosis E J Donovan New York—p 377  
Congenital Malformations of Intestine in Children T B Jones and J J Morton Rochester N Y—p 382  
Indications for Splenectomy in Childhood Results in Fifty Two Operated Cases L K Diamond Boston—p 400  
Hernia in Infancy Gertrude Herzfeld Edinburgh Scotland—p 427  
Incarcerated Inguinal Hernia in Infancy and Childhood A Thorndik Jr and C F Fergusson Boston—p 429  
Dilated Ureter in Children Brief Consideration of Its Cause Diagnosis and Treatment M F Campbell New York—p 438  
Interstitial Radiation Treatment of Hemangiomas J B Brown and L T Byars St Louis—p 452  
Operative Treatment of Cleft Palate A B LeMesurier Toronto—p 458  
Pain Relief for Children R M Waters Madison Wis—p 470

**Surgical Treatment of Chronic Pulmonary Suppuration**—Lanman states that radical surgical procedures for bronchiectasis have a low mortality rate in children. There have been seven lobectomies for bronchiectasis with no operative deaths.

and three total pneumonectomies for bronchiectasis with one operative death. All the patients were less than 12 years of age. The youngest was 6 years old. All were submitted to a one stage operation. These patients have been observed for from three months to four years. Excluding the one operative death and one other patient who died of brain abscess four months after lobectomy, all the patients are improved or doing well. The foundation of chronic pulmonary suppuration in adults is often laid during childhood. Prevention is better than its treatment. The group of cases that has as its etiologic agent a foreign body is the most obvious type for which preventive measures are useful. It is probable that an earlier and more radical treatment of "chronic unresolved pneumonia" or "chronic pneumonitis," associated with a fibrinous pleurisy but without appreciable free pleural pus, may prevent the establishment of a bronchiectasis or even gangrene. Complete and bacteriologic studies are much to be desired. Such studies may give some reliable information on the etiology and prognosis of certain types of bronchiectasis in children.

**Primary Bone Tumors in Children**—Coley and Peterson point out that the early recognition of primary tumors of the bone in children lies in the field of pediatrics and of orthopedic surgery. There are obstacles to be overcome in arriving at a diagnosis. The first of these is the tendency to explain persistent pain in an extremity on the basis of a rheumatic or neuritic condition and to neglect to obtain early roentgenograms of the affected part. Pain not readily explainable on some other grounds should at once arouse suspicion of a primary sarcoma of the bone; and an immediate attempt should be made to establish the diagnosis beyond question. This calls for an early and thorough x-ray examination, to be repeated if inconclusive. Pain is the first and most important symptom, this may precede any visible swelling by weeks or even months. Unless definite signs of an acute infection are present, pain in an extremity in a healthy young person should lead one to suspect the presence of a bone sarcoma even before an external swelling makes it obvious. The acute onset and marked constitutional symptoms that accompany the pain in acute osteomyelitis in children serves to differentiate this condition from sarcoma. A small tumor that has been present without change for several years and is not associated with severe pain is probably benign. On the other hand, pain associated with a tumor of large size or rapid rate of growth points to a malignant process. Again, if the swelling appears promptly after a muscular bruise, grows rapidly at first and then reaches a quiescent state, it is quite probable that the condition may be one of myositis ossificans.

### Anatomical Record, Philadelphia

70 139 236 (Jan) 1938

- Oxydase Reactions as Applied to Megakaryocyte and Blood Platelet of Rat. Christianna Smith, Margaret Robinson and Rebecca Tyson. South Hadley Mass.—p 139
- Functional Homeoplastic Grafts of Adrenal Gland of New Born Rats. G M Higgins and D J Ingle. Rochester Minn.—p 145
- Spermatogenesis in Sex Reversed Female and in Normal Males of Domestic Fowl *Gallus Domesticus*. R A Miller. Iowa City.—p 155
- Persistent Left Superior Vena Cava in Man. Two Cases. J W Papez. New York.—p 191
- Development of Rat Embryos in Circulating Medium. J S Nicholas. New Haven Conn.—p 199
- Anatomy of Inguinal and Hypogastric Regions of Abdominal Wall. B J Anson and C B McVay. Chicago.—p 211
- Volume of Parathyroid Glands of the Albino Rat. C M Blumenfeld and Helena M Rice. Salt Lake City.—p 227

70 237 370 (Feb) 1938

- Thobacopagus Monosymmetros*. Case. G Forbes. Aberdeen Scotland.—p 237
- Branches of Aortic Arch in 153 Rhesus Monkeys (Second Series). C F De Gans. Oklahoma City.—p 251
- Protoplasmic Films of Fat Cell Wall of Pulmonary Alveolus and Renal Glomerulus. J L Bremer. Boston.—p 263
- Comments on Origin and Growth Pattern of Thyroid Parenchyma. A J Ryan. New York and Philadelphia.—p 287
- Improved Biochemical Methods for Chloride, Phosphate-Carbonate and Potassium Applied to Skeletal Muscle. I Gersh. Baltimore.—p 311
- Histochemical Studies on Fate of Colloidal Calcium Phosphate in the Rat. J C Erb. Baltimore.—p 331
- Differentiation in Culture of Pieces of Early Chick Blastoderm. I. Definitive Primitive Streak and Head Process Stages. Dorothea Rudnick. Rochester N Y.—p 351

### Annals of Internal Medicine, Lancaster, Pa

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- Importance of Ocular Signs in Diagnosis of Brain Tumor. E Sachs. St. Louis.—p 1395
- Thyroid Activity in Chronic Arthritis. W B Rawls, A A Ressa, B Gruskin and A S Gordon. New York.—p 1401
- \*Plasmapheresis Experiments on Influence of Colloid Osmotic Pressure Water and Salt in Edema Formation. A C Kerkhof. Minneapolis.—p 1407
- The Doctor Himself as a Therapeutic Agent. W R Houston. Austin Texas.—p 1416
- Abscess of Mediastinum Following Acute Tonsillitis. C S Keefer. Boston.—p 1426
- Coronary Artery Disease. Historical Sketch. F T Fulton. Providence R I.—p 1433
- Effects of Treatment with Radium on Calcium Metabolism in Human Body. J C Aub, R D Evans, D M Gallagher and Dorothy M Tibbets. Boston.—p 1443
- Gonorrheal Endocarditis with Bilateral Parotitis and Toxic Jaundice as Additional Complications. W R Steiner and L L Walton. Hartford Conn.—p 1464
- Nonoperative Treatment of Hyperthyroidism. H Dennig. Berlin Germany.—p 1472
- Digestive and Absorptive Function of External Secretion of Pancreas. M B Handelsman. Brooklyn.—p 1479

**Plasmapheresis and Edema Formation**—His plasmapheresis experiments on dogs prove to Kerkhof that the maintenance of the colloid osmotic pressure at the normal level by some inert colloid (acacia) is sufficient to stop any tendency to edema formation. Even when the protein levels were reduced to values far below the level at which edema usually appears in such an experiment when acacia is not given, edema did not develop. These experiments prove that the tendency to edema formation is a function of the colloid osmotic pressure of the plasma and would tend to show that one of the main functions of proteins in the plasma is the maintenance of a normal colloid osmotic pressure.

### Archives of Ophthalmology, Chicago

19 171 330 (Feb) 1938

- Physical Therapy in Ophthalmologic Practice. S R Gifford. Chicago.—p 171
- Use of Typhoid H Antigen Before Intra Ocular Operations. A L Brown. Cincinnati.—p 181
- \*Ocular Manifestations of Endocrine Disturbance. A N Lemoine. Kansas City Mo.—p 184
- Tentative Interpretation of Findings of Prolonged Occlusion Test on an Evolutionary Basis. F W Marlow. Syracuse N Y.—p 194
- Retained Intra Ocular Foreign Bodies—Clinical Study with Review of 300 Cases. W H Stokes. Omaha.—p 205
- Technic of Goniotomy. O Barkan. San Francisco.—p 217
- Double Perforations of the Eyeball. Classification. N I Medvedef. Stalino Donbass U S S R.—p 224
- Experimental Studies of Ocular Tuberculosis. I. Relation of Ocular Sensitivity to Cutaneous Sensitivity in Systemically Infected Rabbit. A C Woods, E L Burky and J S Friedenwald. Baltimore.—p 229
- Id. II. Relation of Ocular Activity to Ocular Sensitivity in Normal Rabbit Infected by Injection of Tubercle Bacilli into Anterior Chamber. A C Woods, E L Burky and J S Friedenwald. Baltimore.—p 236
- Id. III. Relation of Cutaneous Sensitivity to Ocular Sensitivity in Normal Rabbit Infected by Injection of Tubercle Bacilli into Anterior Chamber. A C Woods, E L Burky and J S Friedenwald. Baltimore.—p 245
- Ophthalmology in Aviation. F H Thorne. Washington D C.—p 253

**Ocular Manifestations of Endocrine Disturbance**—Because of the facility of studying directly under the microscope the living ectoderm, mesoderm and, to a lesser degree, endoderm, and because of the dual control system of the vagus and sympathetic nerves, Lemoine declares that the eye provides an excellent medium for the study of endocrine disturbances. The ophthalmologist should train himself to recognize the signs of endocrine malfunction. Before one attempts to attribute any ocular manifestation to an endocrine disturbance, other disease entities should be eliminated, because in the presence of any other disease one is not justified in making a definite diagnosis of endocrine disease. Glaucoma has frequently been mentioned as being of endocrine origin but it should not be expected to be the result of a single endocrine syndrome. Some cataracts have been placed in the category of endocrine disturbances by a number of authors and cataracts have been attributed to hypofunction of the pancreas, the parathyroids, the thyroid, the gonads and the adrenal cortex and to hyperfunction of both the anterior and the posterior lobe of the pituitary gland. The one observation frequently encountered in patients with cataract (both the congenital and the senile cortical type) is hypothyroidism and in a great number of these cases there is also an associated

**hypogonadism** On a physiologic basis, acquired myopia may possibly be due to endocrine disturbances, either hyperactivity of the adrenal cortex or the posterior lobe of the pituitary gland or hypoactivity of the anterior lobe of the pituitary gland, the adrenal medulla, the thyroid and the gonads. In keratoconus there probably is a relation to some endocrine dysfunction not yet fully understood. Uveitis has been reported in association with endocrine disturbance, but except when it was due to diabetes the symptoms in most of the cases were only suggestive of an endocrine dysfunction. Retinitis pigmentosa has been associated with dysfunction of most of the endocrine glands but on a physiologic basis it is not likely to be associated primarily with any gland but the pituitary or the adrenal.

### Archives of Otolaryngology, Chicago

27 143 260 (Feb.) 1938

- Streptococcal Infection of Lungs from Paranasal Sinuses. Experimental Study. O. Larsell, L. Veazie and R. A. Fenton, Portland, Ore.—p. 143
- Hearing of Speech. D. Macfarlan, Philadelphia—p. 151
- \*Cod Liver Oil for Local Treatment of Tuberculous Pharyngitis and Laryngitis. A. L. Banyai, Wauwatosa, Wis.—p. 154
- Treatment of Recurrent Vertigo (Meniere's Syndrome) by Subtemporal Destruction of Labyrinth. T. J. Putnam, Boston—p. 161
- Treatment of Lateral Sinus Infections Without Operation on Jugular Vein. E. M. Atkinson, New York—p. 169
- Otitic Sepsis. Analysis of Twenty-One Cases and Anatomic Study. A. L. Juers, Owensboro, Ky.—p. 178
- Lyszyme of Nasal Mucus. Method of Preparation and Preliminary Report on Its Effect on Growth and Virulence of Common Pathogens of Paranasal Sinuses. S. Daly, New York—p. 189
- Local Anesthesia for Surgical Treatment of Sinuses. F. T. Hill, Waterville, Maine—p. 197
- Recurrent Paralysis of Larynx Following Injection of Tetanus Antitoxin. Report of Case. A. H. Neffson, New York—p. 201
- Phlegmon and Fistula from Calculus of Submaxillary Gland. J. H. Childrey, San Francisco—p. 204
- Anatomy and Physiology of the Ear. P. E. Meltzer, M. H. Lurie and W. Mueller, Boston—p. 208

**Treatment of Tuberculous Laryngitis**—Banyai applied cod liver oil topically in 126 cases of tuberculosis of the throat. Of these, ninety-one cases of laryngeal and six of pharyngeal tuberculosis were analyzed. Thirty-seven patients with laryngeal tuberculosis died, twenty-nine in less than two months. Pharyngeal and laryngeal ulcers showed rapid epithelization and healing. A favorable therapeutic response was seen in cases in which there was localized infiltration or vegetative granulation. Laryngeal tuberculosis with marked edema is rather resistant to this treatment. Of ninety-one patients with laryngeal tuberculosis whose treatment lasted from two months to one and a half years, twenty-four remained unimproved, forty-two improved subjectively and objectively and twenty-five were healed. In the majority of the cases in which healing occurred, it was established before the patient recovered from the pulmonary tuberculosis. The evidences of symptomatic relief, such as elimination of pain, dysphagia and irritation in the throat, diminution of the cough and easier expectoration were promptly noticeable. Restoration of the normal voice, better sleep and improvement in the patient's general well-being accompanied the objective manifestations of healing.

### Arch of Physical Therapy, X-Ray, Radium, Chicago

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- \*Relief of Neuritic Pain by Artificial Fever Therapy. A. E. Bennett and P. T. Cash, Omaha—p. 69
- Immediate and Early Physical Therapy in Fracture Management. C. R. Murray, New York—p. 74
- The Problem of Specific Effect of Short Waves on Blood Vessels. H. Weisz, J. Pick and V. Tomberg, Vienna, Austria—p. 79
- Improved Method of Underwater Treatment of Arthritis. J. D. Currence, New York—p. 84
- Management of Peripheral Vascular Disease. G. de Takats, Chicago—p. 88
- Value of Roentgenograms in Fractures. R. W. Fouts, Omaha—p. 97
- Treatment of Alopecia Areata with Grenz Rays. E. Last and R. O. Stein, New York and Vienna, Austria—p. 99
- Principles Underlying Modernized Corrective Exercises. H. E. Stewart, New Haven, Conn.—p. 103

### Relief of Neuritic Pain by Artificial Fever Therapy

—At the University of Nebraska, Bennett and Cash have been using the hypertherm for the induction of artificial fever in a large variety of diseases. Up to Jan. 1, 1937, in twenty-six months, they have treated 581 patients, who received more than 2,650 fever treatments. Of these patients forty have under-

gone fever therapy in an attempt to obtain relief from neuritis, myalgic or radicular painful states. There were twenty cases of sciatic neuritis, six of brachial neuritis, five of toxic infectious polyneuritis and infective neuritis, three of herpes zoster, two of lymphocytic meningitis and four of miscellaneous arthritic states with secondary neuritis or neuralgia. All types of neuritic pain were relieved immediately, but pain recurred in some cases, especially in the secondary neuritis from compressive lesions. This form of heat therapy (from 103 to 104°F) is a distinct advance over all local forms of heat in relieving pain. Fever therapy is not recommended to replace other accepted forms of therapy in neuritis but only as an aid in the management. It probably hastens convalescence in the severe toxic infectious polyneuritic states. The physiologic mechanism of general fever induction effecting relief of neuritic pain is not well understood. Undoubtedly the enhanced blood flow at peripheral vasodilatation in the inflamed areas increases tissue oxidation and nutrition. Leukocytosis, phagocytosis and mobilization of immune bodies secondary to induced fever play a part in the absorption of rheumatic deposits, dilution of toxins and the healing of inflamed nerve tissues. The treatments do not interfere with any other indicated therapy and are practically without danger in experienced hands.

### Florida Medical Association Journal, Jacksonville

24 419 466 (Feb.) 1938

- Gonorrheal Arthritis. C. R. Burbacher and A. H. Weiland, Coral Gables—p. 433
- Simplified Method of Treating Fractures of the Shaft of Humerus. C. B. Mabry, Jacksonville—p. 436
- Practical Applications of Vitamin D. J. S. Hood, Clearwater—p. 439
- Treatment of Fractures. Recent Changes in Use of Piano Wire and Steel Pins. P. LeBreton, St. Petersburg—p. 443

### Journal of Immunology, Baltimore

34 190 (Jan.) 1938

- Stability and Antigenicity of Staphylococcus Toxoid. J. S. Kitching and L. N. Farrell, Toronto—p. 1
- Agglutinogens M and N in Anthropoid Apes. A. S. Wiener, Brooklyn—p. 11
- Ascorbic Acid and Complement Function. E. E. Ecker, L. Pillemer, D. Wertheimer and H. Grady, Cleveland—p. 19
- Complementing Activity and Ascorbic Acid Content of Guinea Pig Serums Following Ether Anesthesia. E. E. Ecker, L. Pillemer and D. Wertheimer, Cleveland—p. 39
- Effect of Ascorbic Acid on Constitution of Complement. E. E. Ecker, L. Pillemer and D. Wertheimer, Cleveland—p. 45
- Staphylococcus Alum Toxoid. L. N. Farrell and J. S. Kitching, Toronto—p. 51
- Supplementary Note on Ultrafiltration in Preparation of Pneumococcal Polysaccharides. Rachel Brown and L. K. Robinson, Albany, N. Y.—p. 61
- Sheep Antibody Which Blocks the Prausnitz-Kustner Reaction. M. B. Cohen and T. Nelson, Chicago—p. 63
- Photoreflexometer Instrument for Measurement of Turbid Systems. R. L. Libby, New Brunswick, N. J.—p. 71
- Vascular Processes in Schwartzman Phenomenon as Observed in Pulmonary Reactions. J. M. Weir, Chicago—p. 75

### Journal Industrial Hygiene & Toxicology, Baltimore

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- Morphologic Changes in Livers of Rats Resulting from Exposure to Certain Chlorinated Hydrocarbons. G. A. Bennett, C. K. Drinker and Madeline Field, Warren, Boston—p. 97
- \*Toxic Encephalopathy and Granulopenic Anemia Due to Volatile Solvents in Industry. Report of Two Cases. C. E. Parsons and Malvina E. Moore, Parsons, Kingston, N. Y.—p. 124
- \*Health Hazards in Manufacture of Fused Collars. I. Exposure to Ethylene Glycol Monomethyl Ether. L. Greenburg, May R. Mayers, L. J. Goldwater, W. J. Burke and S. Moskowitz, New York—p. 134
- \*Id. II. Exposure to Acetone Methanol. L. Greenburg, May R. Mayers, L. J. Goldwater and W. J. Burke, New York—p. 148
- Effect of Water on Production of Industrial Dust. H. H. Watson, Porton, Wiltshire, England—p. 155
- Mercury Vapor Detection. L. R. Biggs, Schenectady, N. Y.—p. 161
- Changes in Composition of Blood During Mental and Light Physical Work. R. M. Shkianskaya, C. E. Shakhovich, A. E. Levina and A. J. Zak, Moscow, U. S. S. R.—p. 169
- Reaction of Hypertensive Patients to Atmosphere Containing High Concentrations of Heavy Ions. L. P. Herrington and C. Aubrey, New Haven, Conn.—p. 179

**Encephalopathy and Anemia Due to Volatile Solvents**—The Parsons report the cases of two young men who worked in a shirt factory in constant contact with volatile solvents which were so concentrated in the air of the dressing room that they and the other workers in this room suffered

from burning and watering of the eyes, severe enough to produce conjunctival irritation. The solvents were used for stiffening the collars of shirts. The two patients also showed moderately severe symptoms of 1 Toxic encephalopathy, as evidenced by personality change, frequent dizzy and faint spells, tendency to sleepiness, loss of all interest in their normal amusements and activities after working hours, general hyper-tonicity of all skeletal muscles somewhat resembling the rigidity of recuperating tetanus cases, hyperactivity of all reflexes, transitory right ankle clonus, persistent dilation of pupils and sluggishness of reaction of pupils to light and in accommodation, and moderate ataxia and positive Romberg sign. 2 Anemia, which was moderately severe and associated with granulopenia. The toxin had its greatest destructive effect on the neutrophilic leukocytes which circulated in the blood stream, and the bone marrow was so overstimulated to activity in its failing effort to reproduce neutrophilic cells that it poured young forms, such as myelocytes and young neutrophils, into the blood stream. There was a moderate decrease in the number of red blood cells with a high color index. The picture was similar in some respects to that of benzene or radium poisoning. Whereas the weakness and dizziness might possibly have been caused by the anemia, this seems unlikely, especially since these symptoms were more pronounced in the second patient who had the less severe anemia. The continuance of these symptoms for a considerable time after the blood had reached normal levels in both cases also would suggest the assumption that they resulted mainly from a toxic effect on the central nervous system. Patient 1 showed gastrointestinal symptoms with some signs of acidosis, probably due to vomiting. Both men showed a loss of weight. Although there were no signs of renal irritation, the development of a consistent nocturia (twice nightly) in both cases indicated some disturbance in renal function. The fluid in the "dipping tank" contained ethylene glycol monomethyl ether and a substance containing 90 per cent ethyl alcohol, 44 per cent methyl alcohol, 47 per cent ethyl acetate and 09 per cent petroleum naphtha. Removal of the patients from exposure to the volatile toxic solvent together with treatment for their anemia, resulted in complete symptomatic and objective physical recovery from the poisonous effects on the central nervous system and the blood forming organs with apparently no permanent damage. Follow-up blood counts made eleven months after removal from contact showed continued persistence of neutrophil-lymphocyte relationship and high color index.

**Health Hazards in Exposure to a Volatile Solvent**—Greenburg and his associates performed clinical and hematologic studies on nineteen employees in the collar fusing department of a shirt factory in which ethylene glycol monomethyl ether was used in conjunction with denatured alcohol as a solvent for cellulose acetate. All the subjects had abnormal blood pictures. Clinically, however, they fell into three main groups: those with a negative clinical picture, those with abnormal neurologic changes on physical examinations but no symptoms and those with abnormal neurologic signs on physical examinations and symptoms of fatigue and drowsiness. Disturbances of erythropoiesis were found in nine cases. A general immaturity (shift to the left) of the neutrophilic granulocytes was found in every case. The blood platelets were fewer than normal in the majority of the cases and in several cases abnormal platelet forms were found. The blood picture as a whole is believed to be suggestive of a macrocytic anemia associated with a reduction in the platelets and a relatively large number of young granulocytes. The responsibility of ethylene glycol monomethyl ether for these changes is suggested. As a result of the present experience, the concentration of this substance in the air should be kept below 25 parts per million.

**Health Hazards in Exposure to Acetone-Methanol**—As a control for their previous investigation, Greenburg and his colleagues also studied nineteen workers exposed to the fumes of acetone and methanol in a collar fusing plant. Physical examinations revealed no abnormalities. Blood studies revealed no disturbances in hematopoiesis. Absorption of acetone was demonstrated by finding this substance in the urine of every worker. The concentration of solvents (25 parts per million of methyl alcohol and 40 of acetone) in the workroom atmosphere was apparently not high enough to cause pathologic changes.

## Journal of Pharmacology & Exper Therap, Baltimore

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- Identification of Active Crystalline Substance from Liver Which Protects Against Liver Damage Due to Chloroform or Carbon Tetrachloride and Study of Related Compounds R C Neale and H C Winter Phila delphia —p 127
- Pharmacologic Action of Deuterium Oxide. III Its Protective Effect on Acetylcholine and Epinephrine S B Bogdanovitch and H G Barbour New Haven Conn —p 149
- Id. IV Sympathomimetic Action of Deuterium Oxide in Mice H G Barbour and J B Herrmann New Haven Conn —p 158
- Some Tetrahydroisoquinolines. I Their Relative Toxicology and Symptomatology A M Hjort E J deBeer and D W Fassett New York —p 165
- Autonomic Drugs and Biliary System. I Action of Acetyl B Methyl Choline Chloride (Meecholy) and Benzyl Methyl Carbinamine Sulfate (Benzedrine Sulfate) on Gallbladder J Flexner M Bruger and I S Wright New York —p 174
- Studies of Cyclopropane. IV Cardiac Output in Dogs Under Cyclopropane Anesthesia B H Robbins and J H Baxter Jr Nashville Tenn —p 179
- Nor Epinephrine [ $\beta$  (3,4 Dihydroxyphenyl)  $\beta$  Hydroxyethylamine] as Possible Mediator in Sympathetic Division of Autonomic Nervous System C M Greer J O Pinkston J H Baxter Jr and E S Brannon Nashville Tenn —p 189
- Microscopic Observations of Pulmonary Artery Reactions A J Gilbert Cleveland —p 228
- Reactions of Carotid Arteries of Small Animals T Sollmann and A J Gilbert Cleveland —p 236
- Relative Activity of Various Purified Products Obtained from American Grown Hashish R P Walton L F Martin and J H Keller New Orleans —p 239
- Toxicity and Anesthetic Potency of Some New Benzoyl Derivatives R F Sievers and A R McIntyre Omaha —p 252

## Journal of Thoracic Surgery, St Louis

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- Bronchospirrometry. Review of Present Experiences and Some Further Investigations H C Jacobaeus Stockholm Sweden —p 235
- Effect of Thoracoplasty on Pathologic Physiology of Respiration N L Kaltreider W W Fray and E W Phillips Rochester N Y —p 262
- \*Lung Volume After Thoracoplasty J S Harter Sanatorium Miss R H Overholt and H J Perkin Boston —p 290
- \*Pulmonary and Circulatory Function Before and After Thoracoplasty A V S Lambert F B Berry A Courmand and D W Richards Jr New York —p 302
- Study of Changes in Cardiorespiratory Physiology Following Total Pneumectomy in Young Developing Animals B N Carter J J Long acre and L M Quill Cincinnati —p 326
- Removal of Large Dermoid Cyst from Anterior Mediastinum E V Smith and R G Mills Fond du Lac Wis —p 338

**Lung Volume After Thoracoplasty**—Harter and his colleagues during the last two and a half years have combined the resection of the upper ribs with a mobilization of the apex, providing vertical as well as lateral collapse of the lung in the upper portion of the chest. An apparently more effective control of tuberculosis follows with less sacrifice of the uninvolved lung. Clinical impressions drawn from 179 patients who have had far-advanced tuberculosis arrested by thoracoplasty and from 121 of these patients who are now working are that the great majority of rehabilitated thoracoplasty patients do very well in respect to pulmonary function. Two observations have prevented the authors from becoming unduly alarmed. 1 Relatively few patients complain of dyspnea on exertion or show other effects of pulmonary deficiency. 2 A few patients who had symptoms such as tightness in the chest, wheezing or dyspnea on slight exertion have been relieved by selective thoracoplasty. The readjustment of the size of the thoracic cage to the size of the healthy lung, the relaxation of distorted pulmonary tissue, the dropping of the hilus and the return of the lower lobe and diaphragm to normal positions may increase the patient's ability to use the remaining uninvolved lung. A significant evaluation of the volume of the lung should be delayed for several months, preferably when the disease is arrested and the patient is ambulatory. Preoperative determinations of the volume of the lung were made on seventy-two consecutive patients with the method of Christie. Postoperative studies were made on thirty-two patients. The interval between the last operation and the determination varied from four to eighteen months. The tuberculosis was apparently arrested and all the patients were ambulatory or working. The postoperative status of the thirty-two patients was that sixteen were rehabilitated and sixteen became ambulatory. The preoperative vital capacity varied from 1090 to 4020 cc and the postoperative from 827 to 3465. The preoperative volume of the lung was

from 998 to 5,320 cc and the postoperative from 795 to 3,540. The ages of the patients ranged from 20 to 58 years. There were twelve men and twenty women.

**Pulmonary and Circulatory Function After Thoracoplasty**—Lambert and his associates observed eleven patients having pulmonary tuberculosis from the preoperative state through thoracoplasty. They selected three for detailed description. The first had had neither pneumothorax nor phrenicectomy, previous to thoracoplasty. The second had had a phrenic eversion two years before. The third had at the time of thoracoplasty a partial pneumothorax, also a benign tuberculous empyema in the pneumothorax cavity. The initial and final stages of each are compared. 1 In the first patient after operative collapse of the diseased upper part of the left lung, exertional dyspnea was practically the same as before operation. A decreased breathing capacity, due to the collapse of the wall of the chest, was compensated for by more efficient exchange of air in the remaining good lung. Ventilation during exercise was smaller, oxygen utilization of inspired air was greater and there was no accumulation of carbon dioxide in the arterial blood after exercise. 2 In the second patient there was a great reduction of lung volumes and breathing capacity. The response to exercise in the preoperative state showed high ventilation, poor oxygen utilization and low arterial oxygen saturation, indicating inadequate pulmonary function. Results of venous pressure and vital capacity measurements after intravenous infusion suggested some congestion in the pulmonary vascular bed. Functional studies in the postoperative state showed essentially the same abnormalities as in the preoperative state. Dyspnea postoperatively was somewhat increased. 3 In the last patient artificial pneumothorax had failed to collapse the diseased lung but had collapsed the nondiseased lower lobe. A benign tuberculous empyema had developed. Restriction in lung volumes and breathing capacity was marked. During exercise, ventilation was not abnormally large. After exercise there was arterial oxygen unsaturation, large lactic acid accumulation and rise in arterial carbon dioxide tension. Following operative collapse of the diseased lung, arterial oxygen saturation after exercise was normal. Breathing capacity was still much restricted, venous pressure after intravenous infusion was increased greatly. The lower part of the right lobe was then allowed to reexpand gradually when ventilation after exercise became normal, oxygen utilization was good, arterial oxygen saturation was normal and change in the level of carbon dioxide curve was small. Exercise was accomplished without dyspnea.

### Journal of Urology, Baltimore

39 81 222 (Feb.) 1938

- Tumors of Adrenal Cortex A J Scholl Los Angeles—p 81
- Prolapse of Female Urethra N E Berry and H Greene Kingston Ont—p 92
- Factors Favoring Nonprogression of Certain Tuberculous Lesions of Urogenital Tract G J Thomas T J Kinsella T L Stebbins and C K Petter Minneapolis—p 97
- Pathologic and Bacteriologic Processes Present in Prostatitis and Tissue Reaction to Therapy J S Ritter and C Lippow New York—p 111
- Pyogenic Prostatitis Clinical Analysis of Immune Response R E Cumming and G E Chittenden Detroit—p 118
- Studies of Infections of Vas Deferens H A R Kreutzmann San Francisco—p 123
- \*Relationship of Lesions of Nose Throat Accessory Sinuses and the Eye to Chronic Pyogenic Prostatitis W K Haven Minneapolis—p 128
- \*Symptoms of Nonvenereal Acute and Chronic Prostatitis M B Wesson, San Francisco—p 135
- Treatment of Acute Prostatitis A I Clark Oklahoma City—p 145
- Treatment of Recalcitrant Prostatitis by Drug Injection O Grant Louisville Ky—p 150
- Critical Analysis of Therapeutic Measures in Management of Pyogenic Prostatitis V J O'Connor Chicago—p 156
- Newer Physiology of the Prostate Gland J I Farrell Chicago—p 171
- External Urethrostomy Experimental Study W R Lovelace 2d G J Thompson and J C Mann Rochester Minn—p 186
- Albumin and Bacterial Urinary Calculi S Lubash New York—p 189
- Use of Sulfanilamide in Urogenital Infections S A Vest H Harrill and J A C Colston Baltimore—p 198

**Relation of Ocular and Otolaryngologic Lesions to Chronic Prostatitis**—Haven presents four cases to illustrate some of the clinical details in the relation between lesions of the eye, sinuses, tonsils and prostate. Case 1 illustrates that one negative prostatic smear does not prove the absence of

prostatic infection. In the first examination of the prostatic secretions there were only five pus cells per high power field. This was an instance of an ocular lesion occurring in the presence of multiple foci. The inflammation of the eyes disappeared after tonsillectomy but recurred and healed only after the prostatic infection was thoroughly treated. Case 2 is an example either of tonsillar infection being overlooked or neglected or of tonsillar infection developing since the last examination. It emphasizes the importance of rechecking the nose and throat for foci when a chronic pyogenic prostatitis is not responding well to treatment. In case 3 there was no history of gonorrhea, the prostatitis was probably of hematogenous origin in connection with an influenza and thrombophlebitis. The chronic sinusitis was a focus which retarded the improvement of the prostatic infection under local treatment. Case 4 is a clinical example of too vigorous prostatic massage precipitating an ocular lesion. The prostatic infection was favorably influenced by sulfanilamide by mouth, and a corneal ulcer in the left eye improved rapidly after the prostatic infection was brought under control. The corneal ulcer in the right eye was healed by nonspecific protein therapy and the elimination of infection in teeth and tonsils. The mechanism by which a focus of infection produces an endogenous ocular lesion may be due to the transfer of bacteria or of bacterial toxins. Recent experimental work indicates the possibility of an allergic phenomenon being involved.

**Symptoms of Nonvenereal Prostatitis**—Wesson points out that the incidence of extension of the gonococcus to the prostate is slight. There is commonly present an active non-specific prostatitis and seminal vesiculitis of true systemic origin or a quiescent infection of local origin, and this is activated by invasion of the urethra by the gonococcus. Acute prostatitis is generally due to urethral instrumentation, an acute nonspecific urethritis, cystitis and the like. Chronic prostatitis is a chronic pyogenic infection of the prostate, having its origin in direct extension from the urethra, or invasion through the blood stream or lymphatics. Whenever a state of chronic congestion continues for any length of time, the resistance of the prostate and seminal vesicles is lowered to such an extent that a non-specific infection is prone to develop. A patient with a pain in the lower part of the back or one in the groin that extends suprapubically toward the midline below the umbilicus or down into the scrotum, with a prostate and seminal vesicles that are nodular and indurated on palpation, whose prostatic secretion contains pus and dead spermatozoa and who complains of an exacerbation of the pain on massage has not a beginning hernia or "sacro iliac slip" but a prostatic backache. The epididymitis that frequently occurs spontaneously is due to an extension of the prostatic infection down the vas. Low back pain with a short period of disability is due to myofascia, is a prearthritic condition, while that of long duration is the result of hypertrophic arthritis of the spine. Attacks of gout are frequently aborted by prostatic massage, the symptoms being in the main due to the coexisting arthritis and not to the gout. In acute prostatitis there is usually urinary difficulty. In chronic prostatitis there are no pathognomonic symptoms of the bladder. Prostatitis usually causes no sexual disturbances, but it may be responsible for every phase of derangement from mild inaptitude to complete impotence. Because of the close relationship between the seminal vesicles, ureters and peritoneum, abdominal symptoms are not uncommon. Intestinal obstruction, alleged to be secondary to pressure of swollen seminal vesicles but probably really due to an adynamic ileus, has been reported. Ophthalmologists have found that iridocyclitis and retinitis are occasionally due solely to prostatitis, as such persist after the removal of infected foci in teeth, tonsils and sinuses but clear up with treatment of the prostate. An infected prostate may simulate lesions in distant parts of the body. Prostatic pain is relayed through the sympathetic system to the primary cells in the ganglions and then referred outward through the various connecting ramifications to the organs which these nerve cells supply, giving rise to symptoms not necessarily of pain but related to the function of the organ affected. The impulse of the pain arising in the prostate may reach the central nervous system along the thoracicolumbar sympathetic nerves, the afferent sympathetics form



ing synaptic junctions either in the spinal ganglions or in the anterior column of the spinal cord, to be relayed through the somatic or sympathetic efferent systems. The exact level of their entrance into the spinal cord is doubtful

### Laryngoscope, St Louis

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- Malignant Disease of Nasal Accessory Sinuses with Review of Eleven Cases F R Spencer Boulder Colo and W C Black Denver—p 77  
Vincent's Infection of Mouth Throat and Larynx Report of Case A J Wagers Philadelphia—p 122  
Rationale and Treatment of Sigmoid Sinus Inflammation E R Hargett Washington D C—p 126  
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Facts and Fallacies of Hearing Tests W A Wells Washington D C—p 137  
Suction Tongue Depressor S P Schechter New York—p 146

### Missouri State Medical Assn Journal, St Louis

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- The Management of Infections of Neck and Their Complication Mediastinitis H E Pearce Jr Rochester N Y—p 69  
Diagnosis and Operability of Acute Intestinal Obstruction P C Quist Gard Kansas City—p 75  
Use of Intravenous Dial Urethane in Obstetrics Analysis of 1200 Cases D T Van Del Kansas City—p 79  
Block of Pudendal Nerve in Obstetrics S F Ahrams St Louis—p 81  
Four Year Study of Obstetrics in the Missouri Methodist Hospital W T Stacy St Joseph—p 83  
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### Nebraska State Medical Journal, Lincoln

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- Diagnosis and Treatment of Infections of Upper Urinary Tract C D Creevy Minneapolis—p 81  
Blood Changes Associated with Different Splenomegalies A S Rubnitz Omaha—p 87  
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Protamine Insulin in Treatment of Diabetes Mellitus Report of Fatal Case of Hypoglycemia M Margolin Omaha—p 92  
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### New England Journal of Medicine, Boston

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- Absorption of Glucose from Small Intestine in Deficiency Disease Juda Groen Amsterdam Netherlands—p 247  
Plastic Operation for Correction of Hypertrophy of the Breast H K Sowles Boston—p 253  
Racial Incidence in Portal Cirrhosis Note W Richardson Boston—p 257  
Unusual Case of Painless Swelling of Ankle R F Sullivan and H M Childress Boston—p 258  
Fibroma of Ovary with Ascites and Pleural Effusion S B Weld Hartford Conn—p 262

**Absorption of Dextrose from Small Intestine in Deficiency Disease**—Groen studied the absorption of dextrose in three patients suffering from organic disease of the intestine associated with diarrhea (tuberculous enteritis, ulcerative colitis and nontropical sprue). In each case decreased absorption was demonstrated. Among ten patients with various dietary deficiency diseases, diminished absorption of dextrose was found before treatment in three cases of pernicious anemia and in one case of alcoholic polyneuritis with pellagra. Absorption of dextrose in these four cases returned to normal after treatment. The absorption of dextrose was found to be normal after treatment had been applied in one additional case of pernicious anemia and in two additional cases of alcoholic polyneuritis. However, there was a normal absorption of dextrose in two cases of scurvy before treatment. In cases in which the absorption of dextrose was diminished, the blood sugar showed a smaller rise during the absorption test than in control observations on normal subjects. The flat blood sugar tolerance curve often found in sprue and sometimes in pernicious anemia and certain other dietary deficiency states is attributable at least in part to a diminished absorptive power of the intestine. The decreased absorption of dextrose in deficiency disease is likely to be a specific effect due to a lack of some component or metabolic derivative of the vitamin B complex.

### Rocky Mountain Medical Journal, Denver

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- Surgical Aspects of Indigestion E L Eliason Philadelphia—p 107  
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Some Later Developments in Etiology of Cancer Review of Literature O E Torkelson Casper Wyo—p 130  
Value of Convalescent Serum in Acute Contagious Diseases C M Hyland Los Angeles—p 132  
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### Surgery, St Louis

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Acute Cholecystitis Problems Created by an Attempt to Correlate Its Clinical Surgical and Pathologic Manifestations A Behrend Philadelphia and H K Gray Rochester Minn—p 195  
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Osteodystrophy of Unknown Etiology Case Report E L Compere and M Garrison Chicago—p 203  
Spina Bifida Occulta Report of Case in Which There Was an Occult Myelomeningocele H F Buchstein and J G Love Rochester Minn—p 215  
Resection of the Elbow Joint A J Davidson and M T Horwitz Philadelphia—p 226  
\*Extrascapular Apicolysis (Semb) J W Gale and P A Midelfart Madison Wis—p 234

**Extrascapular Apicolysis**—Gale and Midelfart report sixty-five instances of thoracoplasty with extrascapular apicolysis (Semb) and eight revision operations. Since the procedure is rather recent, the complications were frequent in the earlier cases. These have been reduced greatly with an increasing experience, a more careful selection of cases and the proper timing of the operative stages. The percentage of cavity closures and sputum conversions has been gratifying. An increasing number of patients are already being discharged from the sanatoriums with the condition arrested. The group of revision operations is too small to evaluate except that the most serious complication to be encountered is the accidental opening of the tuberculous cavity. This is best treated by packing the wound wide open to ensure adequate drainage.

### Tennessee State Medical Assn Journal, Nashville

31 41 80 (Feb) 1938

- Therapeutic Abortion Indications and Technique J C Ayres Memphis—p 41  
Lymphopathia Venereum R H Kampmeier Nashville—p 46  
Mucous Colitis with Especial Reference to Treatment F J Runyon, Clarksville—p 53  
Treatment of Pylitis of Pregnancy G A Williamson Knoxville—p 56  
Resume of 139 Cases of Functional Neuroses J C Hill Knoxville—p 61  
Sulfanilamide in Treatment of Gonorrhea T R Barry and G A Williamson Knoxville—p 63

### Virginia Medical Monthly, Richmond

65 63 122 (Feb) 1938

- The Diabetic Foot H J Warthen and W R Jordan Richmond—p 63  
Tuberculosis Results of Clinical Survey C L Hurrell A D Parker and R B Grinnan Jr Norfolk—p 67  
Endocrine Therapy Its Relation to Ophthalmology and Otolaryngology H G Preston Harrisonburg—p 69  
What Medical and Psychiatric Forces Can Do to Reduce Crime D C Wilson Charlottesville—p 73  
The Truth in Diagnosis and in Therapy J A Hall Richmond—p 75  
Reentgen Ray Diagnosis and Treatment of Ocular Fibro Cystica W P Gilmer Clifton Forge—p 79  
Early Diagnosis of Gastric Cancer W Clarkson and A Barker Petersburg—p 83  
Placenta Praevia P Rucker Richmond—p 85  
Lymphogranuloma Venereum E C Hamblen and G H Dertieux Jr Durham N C—p 90  
European Eye Clinics C A Young Roanoke—p 95  
Traumatic Surgery M H Todd Norfolk—p 98  
Hypertensive Retinopathy F H McGovern Danville—p 102  
Intraocular Vaginitis Treated with Anticancer Case W Bickers Richmond—p 104

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Ophthalmology, London

22 65 128 (Feb.) 1938

- National Policy to Be Adopted in Tropical Country for Prevention of Blindness A F MacCallan—p 65  
Nature of Aqueous Humor J D Robertson—p 79  
Significance of Heredity in Ophthalmology Preliminary Survey of Hereditary Eye Diseases in Tasmania J B Hamilton—p 83  
Simple Accessory for the Darkroom J Sherne—p 109

## British Journal of Physical Medicine, London

1 142 (Jan.) 1938

- Some Psychologic Aspects of Physiotherapy E Miller—p 2  
Clinical Aspects of Short Wave Therapy E Schliephake—p 7  
Electrical Iontophoresis Special Indications and Technique A P Cawadhis—p 11  
Electric Lamps and Auxiliary Heating Appliances L G H Sarsfield—p 17  
Postoperative Infra Red Irradiation in Relief of Pain and Promotion of More Rapid Healing R D Howat—p 23  
\*Radiotherapy in Treatment of Eczema M Whitby—p 25

**Radiotherapy in Eczema**—Whitby states that all rays act by absorption, and the majority of the systems are reached directly or indirectly, ultraviolet rays have not the penetrating power of infra-red rays, but they stimulate the endocrine glands in particular, which in turn cause an acceleration of the calcium metabolism, which is so important in the progress of cutaneous treatments. Calcium can be given by other means but the results of ray application have more than justified their use, chiefly by their rapid action. Ultraviolet rays stimulate the central nervous system, giving the patient a feeling of well being, but the first and foremost effect aimed at is the relief of pruritus or even pain. Infra-red rays penetrate deeply and in so doing have an analgesic influence on the nerve endings with the result that the pruritus is kept under control. At the same time they absorb the exudate, thus improving the local blood supply and calcium metabolism. Secondary infections soon cease and the results are lasting. Filtered light is a useful adjuvant in this condition, the lamp used is the 1,000 watt carbon filament and the best screen is the red, which not only has sedative effects but also acts as an additional stimulant. There are a series of sound measures for combating cutaneous ailments, but a definite technic is impractical.

## British Journal of Surgery, Bristol

25 479 722 (Jan.) 1938

- Evolution and Development of Surgical Instruments C J S Thompson—p 479  
Vascular Endothelioma of Lung A T Edwards and A B Taylor—p 487  
Right Duodenal Hernia M Paul and W C O Hill—p 496  
Congenital Microcolon Two Cases J B Ewing and W E Cooke—p 506  
\*Chronic Regional Colitis T G I James—p 511  
\*Acute Regional Ileitis Report of Two Cases with Bacteriologic Findings R Mailer—p 517  
Chronic Inflammatory Tumors of Gastrointestinal Tract F G Ralphs—p 524  
Crohn's Disease or Regional Ileitis L Barrington Ward and R E Norrish—p 530  
Brain Abscess G Horrax—p 538  
Torsion of Testicle and Hydratid of Morgagni J Lambert and R E Smith—p 553  
\*Surgery of Pineal Organ C P G Wakeley—p 561  
Fractures of Shaft of Femur New Method of Traction and Immobilization E L Farquharson—p 592  
Pneumatocele Capitis J B G Muir—p 603  
Recurrent Intussusception of Jejunum W Gissane—p 608  
Latent Carcinoma of the Prostate D McGavin—p 612  
Interlocked Articular Processes Complicating Fracture Dislocation of Spine Survey of Some Recent Cases Treated by Open Operation A H G Munro foreword by C G Irwin—p 621  
Fractured Lumbar Spine with Unilateral Dislocation A W Adams—p 632  
Fracture of Os Calcis W J Eastwood—p 636  
Malignant Disease of Large Intestine J Fraser—p 647  
Intestinal Strangulation Depressor Properties of Peritoneal Transudate in Intestinal Strangulation W d A Maycock—p 677

**Chronic Regional Colitis**—James reports a case of chronic nonspecific inflammation of an isolated part of the colon. The condition was established as a clinical and pathologic entity by Moschowitz and Wilensky in 1923. In most of the cases

described, the lesion has shown a predilection for the terminal portion of the ileum, but any part of the intestinal tract may be involved. The clinical features of the case presented are typical. Young adults are most commonly affected—men more than women—and the common symptoms are abdominal pain, loss of weight, low grade fever, anemia, diarrhea and a palpable mass in the abdomen. The etiology is unknown. No specific organism has been recovered from the feces, the affected intestinal wall or the lymph glands. Pathologically, the changes are those of a nonspecific granulomatous inflammation associated with ulceration of the mucosa and hyperplastic and exudative changes involving all the layers of the intestine. As the condition progresses, the exudative reaction is followed by fibroblastic transformation, with narrowing of the intestinal lumen. The presence of giant cells in histologic sections has not been responsible for a frequent diagnosis of hyperplastic tuberculosis, especially when the ileocecal region has been involved, but careful microscopic examination does not show the characteristics of tuberculosis. Giant cells are not an essential feature of the pathologic process. The complete absence of any healed or active tuberculosis elsewhere, together with negative tuberculous tests, is against the lesion being tuberculous. Chronic regional colitis or enteritis may in some respects simulate ulcerative colitis, but the diarrhea seldom approaches in severity that of this disease. In ulcerative colitis there is seldom a marked connective tissue reaction in the wall of the intestine, and a tumorous mass is seldom palpable in uncomplicated cases. Sigmoidoscopy usually shows characteristic changes. If the general condition is satisfactory, resection wide of the affected area is advisable to prevent recurrence at the site of anastomosis. When the general condition of the patient prohibits more radical measures a short circuiting operation should be performed, with removal of the involved segment at a later date if symptoms persist.

**Acute Regional Ileitis**—Mailer discusses the evidence obtained in a case of acute regional ileitis that *Streptococcus viridans* is the bacterial agent involved. The isolation of the pathogenic organism from the blood stream was suggestive and, though the handling of the intestine at operation may have been responsible for its appearance in the circulation, the finding is no less valid on that account. *Streptococcus viridans* is capable of giving rise to a relatively low grade inflammation similar to that present in regional ileitis. Unfortunately the finding of this organism does not solve all the problems connected with the causation of the disease. If acute ileitis resembled most other acute inflammatory conditions in going on to complete resolution, it might be justifiable to regard it as septicemic in origin and its localization in the ileum as being determined by the large amount of lymphoid tissue there. On the other hand, it is probable that the disease usually runs a more chronic course, that an acute flare-up is incidental and is due either to an increased virulence of the organisms concerned or to localized venous thrombosis with some degree of hemorrhagic infarction. The great increase in the amount of fibrous tissue in the wall of the intestine, which was a feature of Jackman's acute cases, would bear this out. The disease therefore has some features in common with chronic ulcerative colitis and has been regarded by some as simply a localized form of this disease. Such a conception does not necessarily minimize the role of *Streptococcus viridans* as the main bacterial invader, but on the other hand, as in ulcerative colitis, it does postulate some additional factor to account for the susceptibility to the disease and its tendency to chronicity. There is general agreement that acute ileitis should be treated conservatively, as there is a tendency to spontaneous resolution. Laparotomy is, however, always necessary for diagnostic purposes. If the disease has extended beyond the intestinal wall and has caused marked infiltration of the mesentery, spontaneous recovery is less likely and either short circuiting or excision may be necessary. Many patients get well but whether they remain well indefinitely or in gradual stages acquire the chronic fibrostenotic form described by Crohn is not known.

**Surgery of Pineal Organ**—Wakeley states that the surgery of the pineal organ although yet in its infancy is advancing rapidly. The symptomatology tends to be more definite there are usually severe intracranial pressure, headache, vomiting, papilledema, epileptiform fits and some paralysis of the cranial

nerves The eye signs are definite, with loss of pupillary reaction and failure of upward movement of the eyes Operations for the removal of pineal tumors have become standardized, and even if the complete removal cannot be undertaken, a post-operative course of high voltage roentgen therapy will complete the cure, as the majority of pineal tumors are radiosensitive There is no reason why the operative mortality should not be reduced to a low figure and the results become as good as those for the removal of a pituitary tumor The nine cases observed since 1919 are cited

### International Journal of Psycho-Analysis, London

19 1 172 (Jan) 1938

- Homosexuality Magic and Aggression H Nunberg—p 1  
Intellectual Inhibition and Disturbances in Eating Melitta Schmideberg—p 17  
Transition from Organ Neurosis to Conversion Hysteria G W Wilson—p 23  
Remarks About the Relation of Inferiority Feelings to Guilt Feelings F Alexander—p 41  
Relation Between Physical and Psychic Differences in Boys and Girls Note M N Searl—p 50  
Concerning Psychogenesis of Somatic Disease Physiologic and Neurologic Correlations with Psychologic Theory L Stone—p 63  
Ego Development and the Comic E Kris—p 77

### Irish Journal of Medical Science, Dublin

No 145 1 44 (Jan) 1938

- A Patient of the Renaissance W Doolin—p 1  
Hysterosalpingography E Solomons—p 20  
Hysterectomy for Rheumatoid Arthritis B Solomons—p 28

### Journal of Physiology, London

91 365 490 (Jan 14) 1938

- Effects of Castration and of Sexual Hormones on Adrenals of Male Rats Kathleen Hall and V Korenchevsky—p 365  
Response of Denervated Ganglion to Acetylcholine F T A Brucke—p 375  
Lipoid Substances of Ovary During Ova Production in Rana Pipiens E M Boyd—p 394  
Factors Affecting Sodium Potassium and Total Base Content of Anterior Retractor of Byssus of Mytilus Edulis I Singh—p 398  
Exclusion of Liver in the Rabbit H P Himsworth—p 413  
Binocular Summation During Dark Adaptation R J Lythgoe and L R Phillips—p 427  
Action of Curarine on Respiratory Mechanism R West—p 437  
Relation of Hypophysis to Changes in Sugar Tolerance and Insulin Sensitivity Induced by Changes of Diet H P Himsworth and D B M Scott—p 447  
Action of Tyramine and Adrenalin on Denervated Nictitating Membrane Edith Bulbring and J H Burn—p 459  
Carbonic Anhydrase Inhibitor in Serum V H Booth—p 474

### Lancet, London

1 239 298 (Jan 29) 1938

- Origin and Spread of Cancer of Rectum in Relation to Surgical Treatment C Gordon Watson—p 239  
Anemia in Preschool Children Its Incidence in South London T Colver—p 245  
Effect of Sulfanilamide on Blood Picture C M Campbell Jr—p 247  
Hormone Content of Ovarian Tumors Elizabeth H Lepper C L G Pratt Fred B Pratt and Dorothy M Vaux—p 249  
Response of Pellagrins to Nicotinic Acid T D Spies—p 252  
Pellagra Successfully Treated with Filtrate Factor Obtained from Liver Case S Yudkin J C Hawksley and J C Drummond—p 253  
A Ward Epidemic of Sonne Dysentery F Pygott—p 255  
Carbohydrate Metabolism in Anorexia Nervosa J H Sheldon and Freda Young—p 257

**Effect of Sulfanilamide on Blood Picture**—Campbell estimated the activity of the bone marrow by enumeration of the reticulocytes and leukocytes in the peripheral blood of ten patients Whenever possible, observations were made daily or every second day for a definite period before the administration of sulfanilamide, during treatment and for a varying period after cessation of therapy The duration of the latter period depended on the return to or maintenance of normal levels and the length of stay of the patient in the hospital In addition to the ten cases nine others were observed in which less systematic blood examinations were made In four cases the reticulocyte level was above the normal 2 per cent before treatment was started which indicates that a mild reticulocytosis is not uncommon in the presence of sepsis In three of these cases no increase in the reticulocytes by more than 1.4 per cent was observed and in the others there was no rise at all Of the six cases with normal initial counts three showed an increase above

2 per cent either during the period of treatment or in the after-period, the highest figure reached was 4.6 per cent All patients returned to their original levels within a week of cessation of therapy The red cells, hemoglobin and leukocyte levels remained essentially unaffected In none of the nine patients studied only after therapy had started or was completed was there a rise of reticulocytes above 2 per cent Moderate doses of sulfanilamide seem to act as a mild stimulus to the bone marrow Further work is required to determine the relationship of this phenomenon to those cases in which a severe anemia arises

**Hormone Content of Ovarian Tumors**—Lepper and her colleagues tested the fluid from a number of follicular cysts of the ovary for estrogen The concentration of estrogen in the fluid was of the same order as in the normal ripe follicle Owing to the increased volume of fluid the absolute amount of estrogen in the ovary was considerably increased Characteristic changes were found in the mucous membrane and muscular coats of the uterus These changes may be more evident either in the mucous membrane or in the muscular coat, and sometimes the two structures are equally affected Seventy ovarian tumors and the corresponding preoperative urines were examined for the follicle stimulating and luteinizing factors and estrogen The follicle stimulating factor was found in larger amounts in the cyst fluid and urine in cases of malignant than in cases of innocent ovarian tumors This factor may be found, however, in all varieties of ovarian tumors The luteinizing factor was found in the fluid of the cysts in two of three pregnant patients The only cysts that yielded estrogen were the follicular cysts in which it occurred in a concentration at least as high as in the normal follicle and two specimens of germinal cysts in which the concentration was so low as to suggest that it was the same as in the blood stream The association of menstrual irregularities with follicular cysts has been confirmed Other ovarian tumors are far less often associated with disturbance of the menstrual rhythm Pain in and swelling of the breasts before a period was noted more often in patients with follicular cysts than in patients with other types of benign ovarian tumors

**Pellagra Treated with Factor Obtained from Liver**—Yudkin and his associates report a case in which pellagra developed in a man with a gastro enterostomy who lived on an eccentric diet The pellagra yielded rapidly to treatment with a filtrate factor obtained by repeated adsorption of liver extract with fullers' earth

### Medical Journal of Australia, Sydney

1 139 186 (Jan 22) 1938

- Sir Morell Mackenzie A Medical Visionary G Halloran—p 139  
Some Aspects of Government Control of Tuberculosis H W Wunderly—p 142  
Silicosis Among Metal Miners in Western Australia K R Moore—p 147  
Polycythemia Neutrophilia and Myelogenous Leukemia T J F Frank—p 154  
Fracture of the Pelvis J B Colquhoun—p 158  
Personal Experience in Surgery of the Common Bile Duct K Ross—p 160  
Blood Urea Clearance Tests G A Pennington—p 163

### Practitioner, London

140 113 224 (Feb) 1938

- Abdominal Pain as Guide to Diagnosis and Treatment J Morley—p 113  
Diagnosis and Treatment of Pain Referred to Abdomen from Thoracic Organs M Davidson—p 126  
Significance and Treatment of Indigestion F Bulmer—p 135  
Significance and Treatment of Vomiting G Evans—p 145  
Significance and Treatment of Diarrhea in Adults S W Patterson—p 155  
Significance and Treatment of Obstinate Hiccup E Bellingham Smith—p 166  
Laboratory Methods in Diagnosis of Gastro-Intestinal Disorders R G Waller—p 172  
The Management of Insomnia H Cohen—p 181  
Telepathetic Competency of a Patient with Aphasia M Critchley—p 189  
Varieties of Cardiac Dyspnea R O Moon—p 197  
Diet in Health and Disease VIII Diet in Kidney Disease R Platt—p 205

## Archives des Maladies du Cœur, Paris

31 1 172 (Jan) 1938 Partial Index

- Disturbances in Sinus Rhythm and in Auriculoventricular Conductibility in Two Cases of Congenital Heart Disease C Laubry P Soule and P Vincent—p 1
- \*Heart and Anoxia L Binet M V Strumza and J H Ordoñez—p 11
- Hydatid Cyst of Heart E Benhamou, R Montpellier and G C Solal—p 17
- Propagation of an Ascending Contraction Wave in the Ventricle of Frogs R Lutembacher—p 25
- Electrocardiogram of the Aged A Duthoit H Warembourg and Pinchart—p 34

**Heart and Anoxia**—Binet and his associates made experimental studies of mountain sickness on anesthetized dogs. To avoid the influence exerted by the diminution of atmospheric pressure, they used a gas mixture with a deficiency in oxygen but with a pressure of 760 millimeters of mercury. The anesthetized dogs inhaled the gas mixture through a tracheal cannula. The arterial pressure, the electrocardiogram and the respiration were recorded. Their observations reveal the impairment of the heart in acute anoxemia. The graphic recording of the arterial tension suggests the possibility of a cardiac arrest preceding the respiratory arrest. The electrocardiographic records taken in the course of anoxemia reveal five types of disorders: (1) the inversion of the T wave with an anoxemia corresponding to an altitude of 8,000 meters, (2) correspondence of the electromotive force and the duration of this wave, when it has become positive again, to an augmentation to an altitude of 14,000 or 15,000 meters, (3) the marked diminution of the height of the R deflection, (4) the disappearance of the P wave during the apnea caused by the anoxemia or the appearance of an auriculoventricular dissociation, (5) the appearance of a sinus tachycardia at the time of a sudden return to the normal atmosphere.

## Archives de Médecine des Enfants, Paris

41 65 128 (Feb) 1938 Partial Index

- \*New Observations on Infants Having Received BCG by Mouth and Living in a Contaminated Milieu H Stevem, S Levi and Mme J de Prat—p 65
- Endocrine Therapy of Vulvovaginitides in Children Fonesca e Castro—p 73
- Acute Rheumatismal Radiculitis in Children Kadri Rachid Anday—p 86

**Observations on Children Having Received BCG**—Stevem and his associates report observations on eighty-one children who had been given BCG by mouth and who remained in a tuberculous milieu. Although these children were not isolated, their tuberculous morbidity was below that of the nonvaccinated children, their mortality from tuberculosis was nil and the cutaneous reaction with tuberculin was more often negative in the children treated with BCG than in those who were not so treated. These observations were made simultaneously in two different dispensaries and they were in perfect concordance with those made in 1930. The authors conclude that not the slightest danger is involved in the administration of BCG to the children by the oral method, even when it is impossible to take all the precautions which are necessitated by this method of prophylaxis against tuberculosis.

## Presse Medicale, Paris

46 369 384 (March 9) 1938

- \*Symptomatology Value of Weight of Fibrinogen in Blood During Hepatobiliary Disorders C Lian and P Frumusan—p 369
- Physiologic Role of Histamine I Marcon E Athanasios Vergu D Chiriacanu G Cosma N Gingold and C C Parkon—p 371

**Fibrinogen Content of Blood**—Lian and Frumusan describe a technique for the determination of the fibrinogen content of the blood. They combine 15 cc of blood with 0.03 Gm of finely pulverized potassium oxalate. After centrifugation, exactly 5 cc of plasma is put into a precipitation tube containing 100 cc of a coagulating solution that consists of 8 Gm of sodium chloride, 1.25 Gm of calcium chloride and 1,000 cc of distilled water. The mixture is left standing for three hours at room temperature. The time required for coagulation varies. The mass forms a jelly, which is put into a square of fine cloth and is pressed out. When all the liquid has been forced out it is put under a current of water. Then

the cloth is opened and the fibrin is readily detached in form of a small elastic ball, which is washed under a current of distilled water. It has been verified that after this washing the coagulum of fibrin contains no more chlorides but crystals of calcium oxalate, which form as a result of the excess of potassium oxalate employed in the collection of the blood. Then the ball of fibrin is pressed between two thicknesses of filter paper and is dried for six hours at a temperature of 110 C, then it is weighed. The result is the net weight of the fibrin plus the enclosed calcium oxalate. Then the fibrin is placed in a small platinum dish and is subjected to calcination, the ashes are subjected for ten minutes to an extremely high temperature to transform all the calcium oxalate into lime. The ashes are rapidly weighed and from the weight is calculated the weight of the calcium oxalate. To do this, the weight of the ashes is multiplied by 2.60 (the coefficient which corresponds to the calcium oxalate with one molecule of water). When the weight of the calcium oxalate is deducted from the weight of the ball of fibrin, the result is the real weight of the fibrin contained in 5 cc of plasma. The test is made while the person is fasting. In normal subjects the figures were between 4 and 5 Gm per liter of plasma. The authors describe and evaluate the results they obtained with this method. They found it valuable in certain infectious diseases, in some disorders with edema, and especially as a functional test for the liver. They think it should be used for the diagnosis and prognosis of hepatobiliary disturbances. Cirrhosis and icterus of the catarrhal type lead to a notable reduction of fibrinemia, while cancers of the liver and icterus by retention are accompanied by a normal or increased fibrinemia. From the diagnostic point of view, fibrinopenia indicates the cirrhotic nature of a large liver or of an unknown ascites. In icterus, fibrinopenia contradicts an icterus by retention and favors the diagnosis of catarrhal icterus.

## Schweizerische medizinische Wochenschrift, Basel

68 189 212 (Feb 26) 1938 Partial Index

- Chemistry and Physiology of Lipoid Metabolism B Flaschentrup—p 189
- Clinical Considerations on Lipoidoses G Bickel—p 192
- \*Surgical Dilatation of Laryngeal Stenosis in Bilateral Median Position of Vocal Cords as Result of Paralysis of Recurrent Nerve E Luhrmann—p 199
- \*Renal Complications in Tuberculosis of Bones and Joints H R Lammann—p 200

**Surgical Treatment of Vocal Cords in Paralysis of Recurrent Nerve**—Luscher points out that the bilateral median position of the vocal cords, resulting from a bilateral paralysis of the recurrent nerve, leads sooner or later to a severe laryngeal stenosis, so that tracheotomy cannot be avoided. All conservative methods of vocal and respiratory exercises should be tried before surgical measures are resorted to. Moreover, surgical injuries to the recurrent nerve in strumectomies often improve spontaneously in the course of months or even years, so that the glottis becomes again sufficiently wide. However, with rare exceptions the final status is reached after one or two years. After enumerating the difficulties that are encountered in widening the glottis, the author mentions the various interventions that have been recommended, nearly all of which have the object of widening the glottis at the level of the vocal cords. However, Wittmaack developed a surgical method which deliberately induces the lowering of one of the vocal cords. In two cases he found Wittmaack's operation a simple and reliable method for the correction of stenosis of the glottis in case of bilateral paralysis of the recurrent nerve with median position of the vocal cords. He would refrain from performing it only if the patient insists on an absolutely normal and clear voice.

**Renal Complications in Tuberculosis of Bones**—Lammann asserts that the visceral complications of tuberculosis of the bones and joints involve most frequently the kidney and the discharging urinary passages. In the last five years he examined 159 patients with tuberculosis of the bones and joints without visceral complications. He found that 31 per cent had renal complications. Secondary renal tuberculosis therefore assumes an importance as great as that of tuberculous meningitis and of miliary dissemination. The author recommends

that, during treatment of tuberculosis of bones and joints, the examination of the urine for the presence of tubercle bacilli should be a routine measure. Incipient renal tuberculosis causes no symptoms and, when they appear, the lesions usually have advanced so far that further dissemination has to be feared. Early recognition of renal tuberculosis makes early and more successful treatment possible.

### Clinica Medica Italiana, Milan

69 1 72 (Jan) 1938

- Bacterial Flora in Duodenum Clinical Study C Lucchini and L Gozzi—p 5  
Clinical Anatomic and Therapeutic Study of Colitis G Invernizzi—p 49  
\*Volume of Circulating Blood During Induced Fever R Traverso—p 61

**Volume of Blood During Induced Fever**—Traverso found that the volume of blood of normal persons increases in the course of fever induced by the giving of pyretogenic substances. There may be a predominance of erythrocytes over blood plasma, or the reverse. The volume of blood may increase less in persons who react with high fever to the pyrogenic substance than in those who react with slight fever. It is greater during the ascending phase of the fever than during its deferescence. The consumption of oxygen is increased. According to the author, the volumetric variations of the blood are due to special functional conditions of the cardiovascular organs in accordance with the predominance of sympathetic or vagal stimulations. A factor of great importance is the increase of the consumption of oxygen which results in increasing the flow of venous blood to the heart, the cardiac output and the functions of the cardiovascular system. In the phase of deferescence of fever the venous pressure gets lower and the cardiac output and the volume of blood diminish. The author concludes that the factors which stimulate hyperkinesia of the cardiovascular apparatus and mobilization of the blood from blood depots prevail, in the course of induced fever, over those which cause hyposthenia of the cardiovascular apparatus and retention of blood by the blood depots.

### Pensiero Medico, Milan

16 353 384 (Dec) 1937

- \*Bismuth Salicylate in Treatment of Infections of Upper Part of Urinary Tract G Riva Crugnola—p 361  
Periodic Psychosis and Invalidism for Work E Rizzatti—p 372

**Bismuth Salicylate in Infections of Urinary Tract**—Riva Crugnola's treatment for infection of the urinary tract consists in intramuscular injections of 0.1 Gm of bismuth salicylate every other day or 0.2 Gm with intervals of three days between the injections up to a total number which varies from three to twenty injections. The treatment is indicated in cases of grave inflammation of the upper part of the urinary tract with fever, as well as in cases of long duration. The symptoms are ameliorated and the fever disappears after very few injections. The treatment is well tolerated and is not followed by accidents or complications except for a moderate stomatitis in some cases. The results are satisfactory regardless of the type of pathogenic bacteria in the given case. Satisfactory results are reported by the author in ten cases of pyelonephritis or pyonephrosis in which previous energetic medical treatment, the use of a permanent catheter and hypodermoclysis failed.

### Dia Medico, Buenos Aires

9 605 664 (Aug 2) 1937 Partial Index

- Thoracoplasty Resection of Upper Ribs by Suprascapular Route R Finocchio and H D Aguilar—p 606  
Malignant Staphylococcal Infection (Furuncles) of Face D Prat and A M Loubejac—p 609  
Female Sex Hormones A Beaune—p 618  
Cold Crinulemia with Dissemination to Velum Palatinum J Palacio A F Arnaudo and Y Franchini—p 620  
Puncture in Diagnosis of Cancer of Lung A Lanari and A Pavlovsky—p 625

**Puncture of Lung for Diagnosis of Cancer**—According to Lanari and Pavlovsky the cytologic study of material taken from the lung by puncture of the structure is of value for an early diagnosis of cancer. The approximate location of the tumor is determined by the roentgen study of the thorax. The puncture and aspiration of tissue are performed with a needle

such as that used for intramuscular injections or for lumbar puncture and a syringe by means of which a moderate aspiration can be done. The material in the syringe or, if there is none, the particles of tissues around the needle are spread on a glass slide, stained with May-Grunwald-Giemsa stain and examined under the microscope. Cancer cells can be identified by their abnormalities. They rarely divide in amitosis. They show abnormal division and uneven distribution of chromosomes. If they are in the phase of rest they show themselves almost as giant cells with alterations of the protoplasm, ruptured relations between the nucleus and the protoplasm and the nucleus and the nucleolus and abnormalities of size, structure and staining properties of the nucleus. Blastomatous cells are identified particularly by their nondifferentiation, which may be total partial, uniform or polymorphic. The presence of cancer cells in the material which is under examination is the crucial test. Their absence may indicate that the needle failed to reach the cancerous zone. In this case it is advisable to perform a new puncture. It is indicated when the clinical symptoms and roentgen signs show cancer of the lung, whereas the inclusion of sputum of the patient and bronchoscopy give negative results. It is contraindicated in the presence of septic conditions and of echinococcosis of the lung. A diagnosis of cancer of the lung was made by the author in thirteen cases of a group of twenty-four in which the procedure was used. The different aspects of the cells are shown by illustrations in the article.

### Medizinische Klinik, Berlin

34 173 208 (Feb 11) 1938 Partial Index

- \*Foot and Mouth Disease as Medical Problem K Wagener—p 173  
Diagnoses and Therapy of Light and Severe Forms of Erysipelas H Angerer—p 175  
\*Sternal Puncture as Diagnostic Aid in General Bacteriologic Infections A Baserga and G Barbagallo—p 178  
Problem of Centers for Collecting Mothers Milk Conti—p 183  
\*Question of Harmful Properties of Cigaret Paper A Wenusch and R Scholler—p 185  
Analysis and Pathogenesis of Dermatitis Atrophicans Lipoides Diabetica H Gottron—p 190

**Foot and Mouth Disease**—Wagener discusses the epizootic of foot and mouth disease which in September 1938 was brought into Germany from France, where it had been introduced by transports of Algerian sheep. The cause of the disease is a filtrable virus, which passes all so called ultrafilters and retains its infectiousness in extremely high dilutions (1:10,000,000). Hecke succeeded in 1930 in culturing it on the skin of the fetuses of guinea pigs. Today the cultured virus can be obtained in large quantities. There are at least three varieties (A, B and C) of the virus of foot and mouth disease. Immunity produced by one type is not effective against the other types. The transmissibility to man has been demonstrated. After an incubation period of from three to four days, the human form of the disease shows the same two phasic character and the febrile course that is observed in animals. In the local manifestations it is usually possible to differentiate in the time of appearance between the formation of the primary blisters and the later generalization. The primary blisters develop at the point of entry, on the lips, the oral mucosa and the hands. The exanthem of mouth and foot disease consists of vesicles of various sizes, which develop rapidly, burst and heal without leaving traces. In case of nonfebrile disorders that are restricted to the oral cavity, the diagnosis of mouth and foot disease should be made with care. The diagnosis can be corroborated by introducing material from the blisters into the scarified skin of the plantar surface of the posterior extremities of guinea pigs.

**Sternal Puncture in Diagnosis of Infections**—Baserga and Barbagallo aim to demonstrate that the intravital examination of the bone marrow is valuable in general infections, it is often positive when the examination of the blood is negative. Sternomedulloculture has produced good results in cases of brucellosis more particularly in Malta fever (*Brucella melitensis*). It was observed that whereas the blood culture is frequently negative the sternomedulloculture is nearly always positive during the acute stage. Whereas the blood culture reveals positive results as a rule only in cases in which the temperature exceeds 39 C (102.2 F), the medulloculture gives positive results even if the temperature is only in excess of 37.5 C (99.5 F). They cite several case reports and point out



that medulloculture in cases of brucellosis proves that the bone marrow is a focus for the brucella organisms even during the nonsepticemic period. Attention is called also to the diagnostic significance of medulloculture in abdominal typhoid. Observations in more than 100 cases (made by the authors and other investigators) revealed the superiority of medulloculture over blood cultures. The bacillus disappears much later from the bone marrow than from the blood.

**Question of Harmful Properties of Cigaret Paper**—Wenusch and Scholler state that the charge has been made repeatedly that cigaret paper produces harmful combustion products. Experiments have been reported to show that the smoke of cigarets, as a result of a higher carbon monoxide content, has a blood pressure increasing action. The authors, however, proved in earlier experiments that a carbon monoxide concentration, which is much higher than that in the smoke of cigarets, causes no increase in blood pressure. The authors made experimental studies which revealed that the paper of a cigaret of the usual size weighs approximately 0.04 Gm and that this quantity cannot develop much in excess of 1 cc of carbon monoxide. The negligible physiologic significance of this amount becomes more convincing when it is considered that it is distributed over approximately twenty drafts. The authors point out further that a cigaret weighing 1 Gm gives off approximately 20 cc of carbon monoxide, this quantity, distributed over an average of twenty drafts, signifies that approximately 1 cc of carbon monoxide is taken in with each draft. Since one breath carries approximately 500 cc of air, those inspirations during which smoke is inhaled have a carbon monoxide content of 0.2 volume per cent. However, after each breath containing this amount there are from seven to eight inspirations that are practically free from carbon monoxide. The accumulation of carbon monoxide in closed rooms in which considerable smoking is done is usually estimated too high.

### Medizinische Welt, Berlin

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- \*Close Roentgen Therapy H Chaoul—p 225
- \*Close Roentgen Therapy at Low Tension J M Woodburn Morrison and S Bryan Adams—p 231
- Plesioroentgen Therapy F Perussia—p 234
- Further Experiences with Close Roentgen Therapy in Carcinoma of Skin and Lips H G Bode—p 235
- Close Roentgen Therapy in Malignant Tumors A H Roffo and D Giudice—p 237
- Ultraviolet Rays and Cancer F Holtz—p 238

**Close Roentgen Therapy**—Chaoul reviews the efforts made to improve the depth action of roentgen rays and later to imitate the action of radium rays. To make the action of roentgen rays similar to those of radium rays, the first requirement is to make the spatial distribution of the energy of roentgen rays in the tissues similar to that of radium rays. The author accomplishes this by close roentgen therapy with low voltage. He uses the relatively low tension of 60 kilovolts with a filtration of 0.2 mm of copper and distance of from 3 to 5 cm. Two other factors in which the former type of roentgen therapy differed from radium therapy was the time factor and the total dosage. The author shows how these factors are altered in the technic of the close irradiation with low voltage and demonstrates that in close roentgen irradiation conditions are created which largely resemble those in contact radium therapy. To enlarge the sphere of application, a modification in the form of short distance roentgen therapy was developed as a substitute for the radium distance therapy (radium bomb). The author discusses the results obtained with the new form of roentgen therapy in six years. The method was employed chiefly in carcinomas of the skin and of the lips. In one table are recorded not only the cases treated at his own clinic but those of several other clinics. This table lists 595 cases and shows that in 95.4 per cent of the cases primary freedom from symptoms was obtained. He describes the results of close roentgen irradiation in cases of exposed carcinoma of the rectum. Nearly all of the fourteen cases treated with this method were inoperable, but primary freedom from symptoms was achieved in twelve of the fourteen cases.

**Close Roentgen Therapy at Low Tension**—In this report, Woodburn Morrison and Bryan Adams report their experiences with Chaoul's method of close roentgen therapy

at low tension. They show that it fulfils one of the requirements of radiation therapy, namely, it destroys the diseased tissues and preserves the healthy tissue. With the apparatus they used, the dose is easily regulated and permits of variations. In cases of rodent ulcers they usually apply 4,800 roentgens to the base of the tumor. Distributed over a period of ten days, the total surface dose usually amounts to 6,000 roentgens. In other cases of rodent ulcer the 6,000 roentgens was administered at once or in three installments. The results seemed to be better when the dose of 6,000 roentgens was distributed over ten days. In cases of squamous cell carcinoma, the authors apply a dose of 6,000 roentgens to the base of the tumor. This dose is likewise distributed over ten or twelve days. To adenocarcinoma they apply from 7,000 to 10,000 roentgens in the course of twelve days. Malignant tumors are treated with from 10,000 to 15,000 roentgens. For malignant tumors, such as papillomas, are usually treated with a single dose of 4,000 roentgens. Cicatricial keloids respond to a daily dose of 400 roentgens and to a total dose of from 2,400 to 3,000 roentgens. On the basis of two years experience with the close roentgen therapy at low tension, the authors are convinced that it represents the most valuable addition to roentgenology in recent years.

### Monatsschrift für Kinderheilkunde, Berlin

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- \*Prognostic Significance of Determinations of Rest Nitrogen in Diphtheria K H Hoffken—p 1
- Influence of Ultra Acoustic Sound Waves on Diphtheria Toxin J Kasahara and T Takagi—p 8
- Value of Acidophilus Milk in Therapy of Dyspepsia in Nursing K H Kahler—p 18
- Studies of Bone Marrow in Living Rachitic Infant P Liessens—p 22
- \*Formation of Antitoxin Following Active Immunization with Diphtheria Toxin J Kreutzer—p 44
- \*Acetonemic Vomiting with Fatal Outcome Irmgard Scharff—p 51

**Prognostic Significance of Rest Nitrogen in Diphtheria**—Hoffken says that his observations demonstrated that the determination of the rest nitrogen in patients with diphtheria is of no value for prognosis. Rest nitrogen values give no definite indications regarding the possible development of complications, even those of a severe nature. In two fatal cases of toxic diphtheria he observed that the rest nitrogen values became high only when the clinical picture indicated the fatal outcome. In the severe cases in which the prognosis is especially doubtful he found that the rest nitrogen values fluctuated greatly.

**Antitoxin Following Immunization with Diphtheria Toxin**—To determine the effectiveness of precipitated vaccines, Kreutzer investigated the antitoxin formation following their administration. He made his tests with a diphtheria toxin, 1 cc of which contains 95 protective units. He vaccinated children between the ages of 6 and 14 years. The investigations revealed that a single injection of the diphtheria toxin produces adequate antitoxin values in 82 per cent of the children. This favorable result can be improved still more when the quantity of vaccine to be injected is divided into two doses administered with an interval of four weeks. The author thinks that his results justify active immunization against diphtheria.

**Acetonemic Vomiting with Fatal Outcome**—Scharff reports the histories of five cases of acetonemic vomiting which terminated in death. All cases showed the same symptoms: acetone was detected in the respiratory air and in the urine. The attacks of vomiting developed without other demonstrable causes. In all the children the vomiting had persisted for one or several days before hospitalization, so that when the children reached the clinic they were already in an extremely dehydrated and somnolent condition. It was possible to arrest the vomiting and to introduce by mouth fluids, salt and sugar. The cessation of vomiting and these measures resulted in an improvement which, however, was of short duration. The subsequent exacerbation was characterized by renewed vomiting. Whereas previously the stools had been normal or absent, they were now frequent and resembled rice water. The fact that these stools had an extremely high sugar content is considered as proof that during this final stage of the disease the resorption capacity of the intestine is impaired. Necropsies were made in four of the five cases and fatty degeneration of the liver was found in all. The author suggests that degeneration of the liver is

final result of disturbance of the carbohydrate and fat metabolism. She calls attention to the role of the adrenals in the exchange of sodium chloride and in the resorption capacity of the intestinal mucosa. Since acetonemia is favored by the absence of the adrenocortical hormone, the author suggests that during the threatening stages of acetonemic vomiting adrenal cortex extract might be tried in addition to the infusions of sodium chloride.

### Wiener klinische Wochenschrift, Vienna

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- Rare Forms of Syphilis of Nervous System D Paulan —p 197  
\*Determination of Vitamin C in Living Organism H Rotter —p 205  
Simple Method for Determination of Rapidity of Diffusion of Electrolyte in Gelatinated Blood Serum and Its Clinical Application J Glass —p 206  
Eye Symptoms in Internal Diseases J Urbanek —p 208  
Marginal Cases Between Neuroses and Psychoses and Their Treatment E Stengel —p 211

**Determination of Vitamin C**—Rotter says that, whereas Cavitaminosis is rare C-hypovitaminosis is frequent. He directs attention to the role of vitamin C in hemorrhages, in diseases of the blood and in infectious diseases, particularly pneumonia, and also to the interesting fact that cancer tissue contains comparatively large amounts of vitamin C. In his own studies on the vitamin C content of the blood and urine he resorted to titration by dichlorophenolindophenol. It occurred to him to simplify matters by injecting blue dyestuff into the skin, forming a small wheal, and then watching the reducing action of the vitamin C (cevitamic acid) on the dyestuff. Injecting into the plantar skin of guinea pigs with and without scurvy small amounts of a normal 1,000 solution of dichlorophenolindophenol, the author observed the behavior of the resulting wheals. He found that in the skin of the animals with scurvy the discoloration required four times the length of time required in healthy animals. He investigated whether the process of discoloration is a chemical process, a reduction or a biologic process, a resorption. He describes studies on patients which proved that the reduction of dichlorophenolindophenol in the intracutaneous wheals is effected by cevitamic acid. A normal 400 solution of dichlorophenolindophenol was best suited for the intracutaneous injection. The wheal should be about 2 mm in diameter. When this technic was used, it was found that a reduction time of less than five minutes indicated saturation and of between five and ten minutes a normal supply, but that a reduction time in excess of ten minutes indicated a deficiency. The author maintains that this simple method, which can be used by the practitioner, can be substituted for the rather complicated tests on the blood and urine. He proved this by comparative control experiments.

### Wiener medizinische Wochenschrift, Vienna

88 201 228 (Feb 19) 1938 Partial Index

- \*Indications for Surgical Treatment of Acute Severe Gastric Hemorrhage H Finsterer —p 201  
Problem of Cyanosis in Congenital Cardiac Defects of Early Childhood K Hochsinger —p 207  
Neurosis and Somatic Symptoms F M Meyer —p 209  
Hormone Therapy in Form of Respiratory Ferment Ointments a Promising Method in Presbycusis and Other Forms of Hardness of Hearing O Zajack —p 213

88 229 256 (Feb 26) 1938

- Röntgenologic Aspects of Epilepsy in Children A Schuller —p 229  
\*Indications for Surgical Treatment of Acute Severe Gastric Hemorrhage H Finsterer —p 230  
Problem of Cyanosis in Congenital Cardiac Defects of Early Childhood K Hochsinger —p 235  
Microscopically Visible Changes in Connatal Tissue Following Ligation of Deferent Duct K John —p 237

**Indications for Surgical Treatment of Gastric Hemorrhages**—Finsterer summarizes his point of view on the treatment of acute gastric hemorrhages as follows: 1 In acute hemorrhage from a definitely demonstrated ulcer he advises immediate operation because that is the most reliable method for the arrest of the hemorrhage. It prevents fatalities resulting from later erosion hemorrhages due to a burrowing ulcer and it also prevents perforation into the free abdominal cavity. A preoperative or postoperative blood transfusion is necessary only in severe hemorrhages resulting from erosion of a large

artery. 2 If after failure of internal treatment an ulcer persists in bleeding, the author recommends late operation. In cases in which it is doubtful whether the hemorrhage persists, he recommends an expectant attitude, because the prolonged anemia has so impaired the internal organs that even after blood transfusion the operation may be a failure. 3 In case of acute hemorrhage from a probable ulcer he recommends an exploratory laparotomy under local anesthesia, so as to exclude a penetrating ulcer. If an ulcer is detected the resection should be done in the typical manner. In case of a hemorrhage that is the result of an erosive gastritis, the resection is advisable if the disorder has existed for many years and relapses constantly, otherwise the abdomen is closed and the internal treatment is continued. 4 If the hemorrhage appears suddenly, without the slightest previous disturbances, an acute, flat ulcer is probably the cause. In this case internal treatment is advisable. If the loss of blood is considerable or the hemorrhage recurs, the internal treatment should be supported by a blood transfusion. 5 If the existence of a hepatic cirrhosis is certain, exploratory laparotomy seems advisable, if only the slightest gastric disturbances (e.g., heartburn) have preceded because, on account of the stasis, the patient may bleed to death even from an eroded vein of a flat ulcer. 6 When hemorrhage occurs in elderly patients (beyond the age of 60 years) or in an existing arteriosclerosis the author considers surgical treatment even more urgent than in young persons.

**Changes in Gonads Following Ligation of Deferent Ducts**—John ligated the deferent ducts of rats, rabbits and guinea pigs and studied the histologic changes in the testes and epididymides. He found that at first there are no changes but that then hypertrophy becomes noticeable. The first signs of hypertrophy appear in guinea pigs and rats after six weeks and in rabbits after eight or ten weeks. The tubuli contorti are filled with spermatozoa and the testes are slightly swollen. This stage of excessive filling gradually subsides and after a time the testicular tissue appears normal once more. However, other processes are now in preparation. The reduced elimination of the sexual products effects changes first in Sertoli's cells, their plasma gradually disappears, while the nucleus becomes enlarged at first but later shrinks and disintegrates. At the end of ten or twelve months hardly any intact Sertoli cells remain. The author discusses the changes in the seminiferous tubules and those in the interstitial tissue or Leydig's cells. The latter likewise become atrophied. The tissues of the epididymides, however, show a different behavior from those of the testes. The total sterilization of the animals by ligation of the deferent ducts, is followed by a gradual obliteration of the generative tissues, which necessarily leads to abolishment of the sexual functions. Thus ligation actually produces sterilization, but it also impairs such sexual functions as libido and potentia coeundi. The author emphasizes that the changes in the gonads do not develop so rapidly that they could be completed within a few weeks. He found that in the experimental animals the final stage has not been reached until at least twelve months has elapsed since the ligation of the deferent ducts.

### Sovetskij Vrachebnyy Zhurnal, Leningrad

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- Soviet Rheumatology for the Past Twenty Years M V Chernorutskiy —p 163  
Prolonged Infections Serositis and Polyserositis V A Valdman —p 169  
The Value of Roentgenology in the Diagnosis and Classification of Pulmonary Tuberculosis O O Den —p 177  
\*Pregnancy Labor Abortion and Gonorrhea A P Kuselevskiy —p 187  
Intravenous Alcohol Therapy of Pulmonary Gangrene and of Pneumonia K A Egorov and P T Zagulina —p 195  
Cerebrospinal Fluid in Tuberculous Meningitis of Adults M Kh Midiant —p 197  
The Origin of the Water Wheel Murmur N D Sabelnikov —p 205

**Pregnancy, Labor, Abortion and Gonorrhea**—Kuselevskiy reports a clinical study of two groups of women carried out in the Moscow Institute for Protection of Motherhood. The first group comprised 876 obstetric cases while the second consisted of 450 pregnant women who wished to be aborted (this work was done prior to 1935). The author feels that much can be done by the obstetrician-gynecologist to diminish the

incidence of gonorrhea by diagnosing and treating cases among the obstetric patients admitted to maternity hospitals, dispensaries and consultation stations. Patients in whom the diagnosis of gonorrhea was made were treated and kept under observation during gestation and after, the total period being not less than two years. The symptoms of gonorrheal infection in pregnant women did not present pathognomonic signs of the disease. The diagnosis could be arrived at only after detailed clinical and laboratory investigations. This was particularly true of the chronic cases. Despite the more severe character of the disease during pregnancy and the postpuerperal period, smears were positive in only a few cases. The repeatedly positive Bordet-Gengou serologic test proved to be valuable. A greater number of complications took place in cases in which conception took place in the presence of an ascending gonorrheal infection and in cases in which gonorrheal infection developed toward the end of the gestation. Artificial abortion in gonorrheal patients results in complications in from 30 to 33 per cent. Women in whom gonorrhea was demonstrated were given a systematic treatment consisting of local applications, physical therapeutic measures, gonorrheal vaccine and autohemotherapy. Disappearance of the infection and return to a working capacity were obtained in the majority of cases.

### Norsk Magasin for Lægevidenskapen, Oslo

99 137 240 (Feb.) 1938

- \*Statistical Study of Three Hundred and Fifty Three Cases of Intracranial Tumor in Part Verified. A. Torkildsen—p. 137  
Intrathoracic Tumor with Calcification (Roentgenologic By Result) Case B. Werenskiöld—p. 151  
Cushing's Syndrome. V. Furst Jr.—p. 157  
Transverse Lesions of Spinal Cord After Lumbar Puncture (Attempted Spinal Anesthesia) Two Cases. A. Hoyer—p. 165  
Splenic Cyst of Traumatic Origin. Case P. Rosenberg—p. 177  
Congenital Cystic Lung. J. Frimann Dahl—p. 181  
Hereditary Dystrophic Epidermolysis Bullosa Two Cases. S. V. Erichsen—p. 185  
Terminal (Regional) Ileitis. A. Kristoff—p. 192  
Exophthalmic Goiter with Lipodystrophia. H. Rasmussen—p. 197  
Gronblad-Strandberg Syndrome. Angiod Striae of Eye Fundus—Pseudo Xanthoma Elasticum. K. Hubert and B. Nyquist—p. 201

**Intracranial Tumors**—Of the 353 cases of intracranial tumor, of which 154 were verified on operation or at necropsy, 189 were in male and 164 in female patients. Five patients were under the age of 5 years and none were over 66, the greatest frequency was in the age group from 36 to 40. Torkildsen says that the most important symptoms named by the patients were, in order, headache, vomiting, paralyses of cranial nerves, dizziness, loss of vision, focal epilepsy and pareses of extremities. Objective examination on admission showed mental disturbance in 190 cases (53 per cent). Of the pareses of the cranial nerves the most common were those of the nerves of the eye muscles and of the facial nerve, together with reduced function of the optic nerve. Choked disk was present in 200 cases. In 153 of 167 cases the cell content of the spinal fluid was less than 15/3, in 122 out of 161 the albumin content was less than 1/25 and in 127 out of 154 the globulin content was less than 1/3. The pulse frequency was 50 or less in four cases, between 50 and 60 in eighteen, and more than 90 in forty-eight. There were no special peculiarities in pulse frequency in relation to age. No connection was seen between high blood pressure and high pressure of the spinal fluid.

### Ugeskrift for Læger, Copenhagen

100 71 100 (Jan. 27) 1938

- \*Treatment of Chronic Degeneration of Heart. N. R. Christoffersen—p. 71  
Insulin and Metrazol Shock Treatment in Schizophrenia. O. J. Nielsen—p. 80  
\*Myelomatosis. Diagnosis and Differential Diagnosis. A. Grut—p. 85  
Treatment of Hay Fever. Lisbeth Lind Hansen—p. 87  
Peculiar Widal Reaction. J. Ernst and F. Kauffmann—p. 88  
Miliary Tuberculosis in Puerperium. Report of a Case. C. Maarsskjold—p. 89  
Adiposogenital Dystrophy Treated with Phyxex. H. Bennike—p. 90

**Myelomatosis**—Grut's case was characterized by unusually high proteinemia, rapid formol-gel reaction, absence of coagulum reaction, infiltration of organs by plasma cells and rapid clinical development. The diagnosis was verified by sternal puncture. Bence Jones proteinuria was confirmed by careful examination. He considers (1) myelomatosis with change

only in the bone marrow but spread diffusely through the system, (2) myelomatosis with limited tumors in bone marrow and bone substance and (3) myelomatosis with diffuse infiltration of bone marrow and bone substance, eventually of organs, by tumor cells. The first and third forms differ in the intensity of the pathologic changes. With slight intensity of the process, transition from the first to the second form is thought likely, with considerable intensity, as in the case reported, there is direct transition from the first to the third form, with fatal outcome in a short time. In the first form the symptoms are vague and the characteristic picture does not appear until there are localized multiple myelomas. Examination of the blood gives no information. The x-ray reactions are not pathognomonic. Increase in the serum globulins, however, is characteristic, only one case of myelomatosis with normal sedimentation and formol-gel reaction has been described. These two reactions are thus of the greatest practical value in the diagnosis of myelomatosis. In 50 per cent of the cases there is Bence Jones proteinuria, which occurs only occasionally in other disorders, it can be established in 80 per cent of the cases if examinations are frequent and made for months. Establishment of the protein may be difficult if simultaneously abundant serum albumin is present in the urine. Certain diagnosis depends on sternal puncture. Sedimentation reaction is called for in all cases with resistant pain in the back, formol-gel reaction in all afebrile patients with high sedimentation reaction, and if the formol-gel reaction is positive, sternal puncture is indicated. The formation of the serum globulins and Bence Jones protein is assumed to take place in the bone marrow, especially in its plasma cells. The high hyperproteinemia in the author's case is ascribed to penetration of not only the bone marrow but also numerous organs by the plasma cells. The quantity of the tumor cells and their quality apparently determines the degree of hyperproteinemia.

100 129 158 (Feb. 10) 1938

- Hypovitaminosis A. Grut—p. 129  
Occurrence of Trachoma in Copenhagen. J. P. Jensen—p. 131  
\*Danish Family with Cameloid Blood Corpuscles. Constitutionally Elliptocytosis. Ovalocytary Anemia. A. Bertelsen—p. 136

**Danish Family with "Cameloid" Blood Corpuscles**—Bertelsen says that elliptocytary or ovalocytary anemia easily escapes clinical recognition and that its frequency is unknown. At present ten reports on constitutional elliptocytosis have been reported, concerning either cases in which the elliptic deformity of the red blood corpuscles was accidentally discovered and not believed to be connected with any disorder or cases in which it is regarded as the disposing cause of long continued anemia and febrile conditions. Familial occurrence of twelve cases of elliptocytosis in four generations is here reported, including one case of grave elliptocytary anemia in a boy, aged 3 years, observed for a considerable time. The most marked elliptocytotic pictures were in the boy and his mother, but in no case was the diagnosis in doubt. The number of deaths in childhood in the family has not exceeded that in most families. Elliptocytosis is regarded as a constitutional anomaly with dominant transmission, but the hereditary relations are still largely unsolved. In no reported case have the anemia and its complications been fatal. When a true anemia accompanied by chronic infection has developed, the disease has been of unusually long duration. Except in Roth and Jung's case, the later fate of the patients is unknown. In four of the seven cases clinically described, the liver and spleen were enlarged, in two splenomegaly was a prominent symptom, and in two there was jaundice. On examination in the counting chamber the form of the blood corpuscles may pass unnoticed and in smears the deformity may perhaps be considered an artificial product disregarded as an unimportant or peculiar form of anisocytosis. In chronic sepsis with enlargement of the spleen and anemia, complete examination of the blood with this anomaly in mind is advised. The elliptocytosis itself does not seem amenable to any therapy. Hunter and Adams report improvement of the anemia after treatment with liver extracts, and Roth and Jung after treatment with solution of potassium arsenite. The author found that similar treatment was of doubtful value in the case that he reports, but blood transfusion helped the patient through a critical period.

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## STATISTICS ON DEATHS FROM RHEUMATIC HEART DISEASE

HALBERT L. DUNN, M.D., PH.D.

Chief Statistician for Vital Statistics Bureau of the Census

WASHINGTON, D. C.

AND

O. F. HEDLEY, M.D.

Passed Assistant Surgeon United States Public Health Service

PHILADELPHIA

The Bureau of the Census publishes mortality statistics according to the titles of the International List of Causes of Death. This list has been accepted internationally for over forty years. It is modified at each decennial revision by means of an international conference, the next meeting of which will be in the fall of this year. This revision is necessary in order to realine the list with advances in the science of medicine.

Two distinctly different points of view are in conflict with each other in the revision of this list. From the standpoint of physicians on the frontier of modern medicine, the essential desire is to change the titles so as to produce statistics which meet the requirements introduced into the picture of death by the new and advanced knowledge of medicine. Each modification of the list made with the purpose of meeting the demand for change disturbs the comparability of the mortality statistics produced by the use of the list, so that it becomes increasingly difficult to study the significance of changes in the death rates for various conditions from one decade to another. On the other hand, the physician desiring change says "What use is it to maintain comparability if the titles are relatively meaningless in the light of the newer knowledge of medicine?"

An assumption commonly made by both the physician and the statistical analyst is that the problem of securing comparability in mortality statistics will be solved if satisfactory readjustments can be made in the International List of Causes of Death. While it is true that such adjustments are essential in order to modernize the list and to bring it into line with advances of medicine, other factors are also involved in the production of statistical comparability of the tabulations. Among these factors are such items as the changing habits of the physician in the diagnosis of disease, the increase in his knowledge and the new scientific tools at his disposal for diagnosis, and the methodology in the selection of the primary cause of death when several causes are noted on the certificate.

From the Office of Vital Statistics Bureau of the Census, United States Department of Commerce and the Office of Heart Disease Investigations, branch office of the National Institute of Health.

Students of heart disease have been at a disadvantage because of the lack of mortality statistics tabulated on the basis of what is now an accepted entity, rheumatic heart disease. The International List of Causes of Death classifies the various heart conditions on an anatomic basis, whereas it is now generally accepted that rheumatic conditions should be treated as a unit, since they have a common etiologic basis. It has become increasingly important that this particular group of heart diseases be studied as a class, since cardiac mortality as a whole has been increasing over the past two decades.

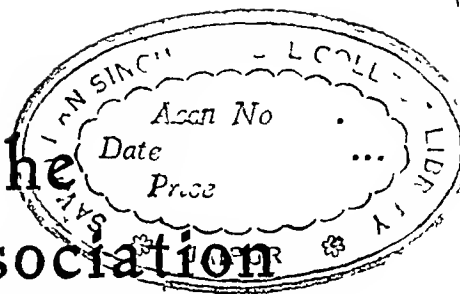
One of us, an officer of the United States Public Health Service assigned to the Office of Heart Disease Investigations, has been responsible for focusing the attention of physicians on the need for change in the tabulations of rheumatic heart conditions. His contributions were emphasized in an editorial in THE JOURNAL of Jan 9, 1937.

At the present time the International List of Causes of Death classifies acute rheumatic fever separately as title 56. Other rheumatic heart conditions are included without separate notation under the titles pericarditis, chronic endocarditis, diseases of the myocardium and other diseases of the heart.

The Bureau of the Census has agreed to separate rheumatic conditions under each of these titles for the death certificates of 1937, 1938 and 1939. For these years heart conditions will be tabulated in two ways as they have been listed in the past, so that comparability can be retained, and also, in accordance with the needs of the cardiologist, as separate rheumatic conditions. The accompanying table constitutes the office breakdown to be used by the Bureau of the Census in the tabulations for the years mentioned. The changes affecting rheumatic heart disease are listed in italics.

The proposed regrouping of deaths from heart conditions to be used by the Bureau of the Census in the tabulations of 1937, 1938 and 1939 is an office breakdown and does not constitute official changes in the International List of Causes of Death. However, the American Public Health Association committee on the accuracy of certified causes of death has incorporated a similar modification as a part of its recommendations to be made to the international commission for the revision of the International List of Causes of Death in Paris this fall. What can be achieved in effecting a permanent reclassification of the rheumatic conditions will not be known until the results of the meeting of the international commission are obtained.

There is little doubt that an entirely new picture will result from the separate tabulation of rheumatic cardiac conditions. In preliminary studies conducted by the United States Public Health Service in Philadelphia, practicing physicians in that city were requested



to report deaths from rheumatic heart disease during 1936. The number reported was 357, which would indicate a death rate for Philadelphia of 176 per hundred thousand of population. In addition there were 195 deaths which might or might not have been

*Regrouping of Heart Diseases for Mortality Statistics*

INTERNATIONAL LIST OF CAUSES OF DEATH, FOURTH EDITION (Present classification of deaths from heart conditions)		REGROUPING OF DEATHS FROM HEART CONDITIONS TO BE USED IN TABULATIONS OF 1937-1939	
Title No	Title Name	Title No	Title Name
56	Acute rheumatic fever	56	Acute rheumatic fever A <i>Acute rheumatic endocarditis</i> B <i>Acute rheumatic myocarditis</i> C <i>Acute rheumatic pericarditis</i> D <i>Other acute rheumatic heart conditions under this title</i> E All others under this title
90	Pericarditis	90	Pericarditis A <i>Chronic rheumatic pericarditis</i> B Others under this title
91	Acute endocarditis A Specified as acute B Unspecified (under the age of 45 years)	91	Acute endocarditis A Specified as acute B Unspecified (under the age of 45 years)
92	Chronic endocarditis, valvular diseases A Endocarditis specified as chronic and other valvular diseases B Endocarditis, unspecified (45 years and over)	92	Chronic endocarditis, valvular diseases A Endocarditis specified as chronic and other valvular diseases B Endocarditis, unspecified (45 years and over) C <i>Chronic rheumatic valvular diseases including chronic rheumatic endocarditis</i>
93	Diseases of the myocardium A Acute myocarditis B Myocarditis, unspecified (under the age of 45 years) C Chronic myocarditis and myocardial degeneration D Unspecified	93	Diseases of the myocardium A Acute myocarditis B Myocarditis, unspecified (under the age of 45 years) C Chronic myocarditis and myocardial degeneration D Unspecified E <i>Chronic rheumatic myocarditis</i>
94	Diseases of the coronary arteries and angina pectoris A Angina pectoris B Diseases of the coronary arteries	94	Diseases of the coronary arteries and angina pectoris A Angina pectoris B Diseases of the coronary arteries
95	Other diseases of the heart A Functional diseases of heart B Other and unspecified	95	Other diseases of the heart A Functional diseases of heart B Other and unspecified C <i>Rheumatic heart disease</i>

due to a rheumatic condition, e. g., those due to subacute bacterial endocarditis, to endocarditis in persons under 30 years of age, to valvular disease of long duration in persons over 30, to mitral stenosis and to other conditions encountered less frequently.<sup>1</sup>

Since plans have been made to tabulate rheumatic conditions in such a manner that the statistics will be of greater value to the medical profession, it is urged that practicing physicians throughout the United States report deaths from rheumatic heart disease whenever the rheumatic origin can be determined. Unless they are reported as such on the death certificate, the deaths cannot be tabulated as rheumatic. Whenever possible the general term "rheumatic heart disease" should be qualified by designation of the specific anatomic lesion, i. e., "rheumatic heart disease, mitral stenosis." In view of the increasing interest in rheumatic heart disease, it should not prove difficult for physicians to specify the rheumatic origin. Practically every article in the medical literature dealing with this disease and every textbook on the subject written during the past fifteen years has stressed the etiologic point of view. Immediate death resulting from acute rheumatic fever is relatively infrequent. Smith estimated the rate to be from 1 to 4 per cent. Such death occurs almost always as a result of rapidly progressive carditis. However, deaths from longstanding rheumatic disease are numerous and should be specified. Experience has shown that a history of rheumatic fever or chorea can be obtained in only about 50 to 75 per cent of the cases of rheumatic heart disease. Not infrequently rheumatic heart conditions develop insidiously or else the patient fails to remember mild attacks of rheumatic fever or chorea. Language difficulties or the condition of the patient sometimes prevent the physician from obtaining a satisfactory history unless special care is taken.

By means of necropsies and microscopic examinations a large proportion of the conditions diagnosed as mitral stenosis, the majority of those diagnosed as aortic stenosis and adherent pericardium, in combination with other valvular lesions, and valvular disease of any type of long duration have been proved to be of rheumatic origin. It is desirable that a necropsy be performed whenever possible if the diagnosis is questionable, so that the condition can be established as rheumatic or nonrheumatic.

A number of conditions must be differentiated from rheumatic heart disease. Chief among these are congenital cardiovascular defects, especially in children syphilitic aortitis with or without aortic valvular insufficiency, aortic stenosis which may be the result of calcareous changes, aortic insufficiency from aortic hypertension or arteriosclerosis, and pericardial involvement due to pyogenic infections or tuberculosis. Except when there is a history of rheumatic infection or heart disease of many years' duration, extreme caution should be used in diagnosing rheumatic heart disease solely on the basis of systolic mitral murmurs, especially when they are associated with congestive heart failure, aortic hypertension, anemia or a rapid heart action due to hyperthyroidism or other causes.

Infectious septic or metastatic arthritis are not infrequently misdiagnosed as rheumatic fever. Not only acute bacterial endocarditis occurring as a result of pyogenic infections but also gonococcal endocarditis should be differentiated from rapidly progressive rheumatic endocarditis and subacute bacterial endocarditis superimposed on rheumatic heart disease.

SUMMARY

Changes have been made in the method of tabulating deaths from heart disease to provide for the separate

<sup>1</sup> Hedley, O. F. Mortality from Rheumatic Heart Disease in Philadelphia During 1936. *Pub. Health Rep.* 52: 1907 (Dec. 21) 1937.

<sup>2</sup> Swift, Homer T. in Cecil, R. I. *A Text Book of Medicine*. Philadelphia: W. B. Saunders Company, 1936.



tabulation of deaths from rheumatic heart conditions. The application of these changes began with the tabulation for January 1937.

Physicians throughout the United States are requested to report deaths from rheumatic heart disease as such and to qualify the term when possible by specifying the anatomic lesion in accordance with the regrouping listed in the table.

## POSTOPERATIVE CORONARY ARTERY OCCLUSION

ARTHUR M. MASTER, MD

SIMON DACK, MD

AND

HARRY L. JAFFE, MD

NEW YORK

For some years we have been impressed by the association of operation and coronary artery occlusion in patients over 50 years of age. In our previous papers<sup>1</sup> evidence was presented indicating that there was no relationship between the onset of coronary occlusion and exertion, excitement, meals, rest and the like. Operation, on the other hand, was considered probably a precipitating factor. In order to investigate this problem more fully we have collected records of all cases of postoperative occlusion observed at the Mount Sinai Hospital in New York during the years 1931 to 1937. They emphasize the importance of operation in inducing occlusion, and the following analysis attempts to determine which elements of the surgical procedure lead to it.

The association of operation and coronary artery occlusion has been stressed in the past only by Saphir and his associates.<sup>2</sup> Several authors<sup>3</sup> have stated that coronary occlusion in patients with coronary sclerosis may follow operation. In a series of 192 operations,<sup>4</sup> five deaths were attributed to coronary occlusion subsequent to the operation. From time to time specific instances of coronary occlusion following an operation or a minor surgical or laboratory procedure, such as gastrointestinal x-ray examination or intravenous injection, have been noted.<sup>5</sup> But none of these authors have attempted to give evidence that the operation precipitated the occlusion.

From the Surgical Services and the Cardiographic Laboratory, the Mount Sinai Hospital.

1 Master A M, Dick Simon and Jaffe H L. The Relation of Various Factors to the Onset of Coronary Artery Thrombosis. *J Mount Sinai Hosp* 3: 224 (Jan-Feb) 1937. Factors and Events Associated with the Onset of Coronary Artery Thrombosis. *J A M A* 109: 546 (1937).

2 Saphir Otto, Priest W S, Hamburger W W and Katz L N. Coronary Arteriosclerosis, Coronary Thrombosis and the Resulting Myocardial Changes. *Am Heart J* 10: 567 (June) 762 (Aug) 1935.

3 Fitz Hugh Thomas Jr and Wolferth C C. Cardiac Improvement Following Gallbladder Surgery. *Ann Surg* 101: 478 (Jan) 1935. Levine S A. Clinical Heart Disease. Philadelphia W B Saunders Company 1936 p 265. Harrison T R. Failure of the Circulation. Baltimore Williams & Wilkins Company 1935 p 334. Fishberg A M. Heart Failure. Philadelphia Lea & Febiger 1937 p 365.

4 Sprague H B. The Heart in Surgery. *Surg Gynec & Obst* 49: 54 (July) 1929.

5 These cases have been reported by: Hamburger W W. The Differential Diagnosis of Cardiac and Gastrointestinal Lesions, with Particular Reference to Pectoral and Extra-pectoral Angina. *M Clin North America* 3: 1677 (May) 1920. Fitz Reginald. Case of Angina Pectoris with Cardiac Infarct Induced by Intravenous Injection of Tetraiodophenolphthalein. *Tr A Am Physicians* 43: 292 (1928).

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Weiss Edward. Fatal Coronary Occlusion Following an Injection of a Local Anesthetic. *M J & L* 135: 61 (Jan 20) 1932. DeSanto D A. Operation and Trauma as a Cause of Coronary and Cerebral Thrombosis. *Am J Surg* 26: 35 (Oct) 1934.

## ANALYSIS OF CASES IN WHICH THERE WAS POSTOPERATIVE OCCLUSION

**Incidence and Diagnosis.**—During the years 1931 to 1937, 625 attacks of coronary artery occlusion were treated in the Mount Sinai Hospital. Thirty-five, or 5.6 per cent, of these attacks followed an operation in the hospital (table 1). In every instance the presence of the occlusion was proved by postmortem examination or by electrocardiogram. Thirteen additional cases in which coronary occlusion was diagnosed by the surgeon or medical consultant have been omitted because of the lack of postmortem and electrocardiographic examination.

The diagnosis of coronary artery occlusion following operation is frequently difficult, since the very severe pain ordinarily associated with this condition may be absent, it was present in only two fifths of our cases. This disparity may be accounted for, in part, by the liberal use of narcotics and sedatives after operation. Postoperative coronary occlusion is usually ushered in by shock, with dyspnea and cyanosis, and must therefore be differentiated from surgical shock and, in particular, from shock resulting from pulmonary embolism, a differentiation which may be impossible clinically. In certain cases of pulmonary embolism, even the electrocardiogram, if only one is obtained, may resemble that recorded in cases of infarction of the posterior surface of the heart. Because of this uncertainty in clinical diagnosis our report includes only the thirty-five cases in which the electrocardiogram was definite or postmortem examination was performed.

**Age and Sex.**—Almost two thirds of the patients were 60 years of age or older, the average age was 62. Only four were less than 50 (table 2). Thus postoperative occlusion occurred in the older age groups, in which coronary artery disease is apt to be more prevalent.

The ratio of men to women was 48:1, although the total number of operations in the hospital was equally divided between the sexes.

**Previous Cardiac Disease.**—Evidence of moderate to severe coronary artery sclerosis was found in all but three of the cases in which a complete history, physical examination and electrocardiographic study were recorded. A history of angina pectoris or dyspnea was frequent, and eight patients had a record of previous coronary occlusion. In thirteen cases hypertension and cardiac enlargement were of long standing. Electrocardiograms were obtained before operation in thirteen cases, and eleven presented definite abnormalities in the T wave and QRS complex. Finally, sclerosis and narrowing of the coronary arteries were present in all cases that came to necropsy.

**Time of Occlusion.**—Fifty-one and five-tenths per cent of the attacks of postoperative coronary artery occlusion occurred within three days after the surgical procedure (table 3). In six of these cases the onset occurred during the first twenty-four hours, in five on the second day and in seven on the third. Of the remaining attacks, fifteen occurred prior to and two during the third week. Several cases in which occlusion occurred after the third week were not included although the attacks may have been related to the operation. It is thought<sup>6</sup> that coronary artery

6 Neil Harold. Preliminary Pain in Coronary Thrombosis. *Am J M Sc* 193: 42 (Jan) 1937.

occlusion may be preceded for several days or weeks by premonitory symptoms, suggesting a gradual formation of the thrombus

*Type and Duration of Operation*—As may be seen in table 1, coronary occlusion may follow any type of surgical procedure. While most of the operations were

of major severity, such as resection of portions of the gastrointestinal tract, cholecystectomy and prostatectomy, occlusion occasionally followed a minor procedure, such as paravertebral block and drainage of a phlegmon. Other operations included iridectomy, mastoidectomy, tracheotomy, thyroidectomy and hemi-

TABLE 1—Clinical Data of Thirty-Five Cases of Postoperative Coronary Artery Occlusion

Case	Sex and Age	Onset Postoperative	Operation	Anesthesia	Postoperative Complications	Symptoms of Attack	Electrocardiogram	Outcome	Necropsy
1 B K	♂ 66	4 hrs	Iridectomy	Local	None	Pain, shock, cyanosis	T <sub>1</sub> type	Recovery	
2 S Y	♂ 59	4 hrs	Gastrectomy	Spinal gas, oxygen, ether	Bowel necrosis, mesenteric vein thrombosis	Shock	None	Death in 6 hrs	Acute and old left circumflex occlusion, marked sclerosis
3 J G	♂ 67	5 hrs	Tracheotomy	Local	None	Dyspnea, cyanosis, shock	T <sub>2</sub> type	Recovery	
4 J S	♀ 50	6 hrs	Spinal tap	Local	None	Vomiting, cyanosis, shock	T <sub>2</sub> type	Recovery	
5 V D	♂ 69	1 day	Cholecystectomy	Local gas, oxygen	Peritonitis	Shock	T <sub>1</sub> type	Death in few hrs	Acute and old LAD* occlusion, marked sclerosis
6 I C	♂ 74	1 day	Cholecystectomy	Local gas, oxygen, ether	Peritonitis	Dyspnea	None	Death in 2 days	Acute left circumflex occlusion, marked sclerosis
7 B S	♀ 58	1½ days	Rectal resection	Avertin with amylene hydrate gas, oxygen, ether	Surgical shock	Shock	T <sub>1</sub> type	Death in 12 hrs	
8 P W	♂ 64	2 days	Gastrostomy	Avertin gas, oxygen, ether	Hemopneumothorax	Pain, pulmonary edema	T <sub>1</sub> type	Death in 36 hrs	Acute and old LAD occlusion, moderate sclerosis
9 J H	♂ 75	2 days	Cystostomy	Local	Anemia, cystitis	Pain, dyspnea	None	Death in 2 days	Acute myocardial marked sclerosis
10 D L	♂ 72	2 days	Tracheotomy	Local	Vomiting, diarrhea	Pain, weakness	T <sub>2</sub> type	Death in 19 days	
11 S G	♂ 67	<3 days	Laparotomy	Spinal	Gastric hemorrhage and perforation	Pain, dyspnea	T <sub>2</sub> type	Death in 6 wks	Acute left circumflex occlusion, marked sclerosis
12 J N	♂ 82	<3 days	Cystostomy	Local	Uremia	Dyspnea	None	Death in 3 days	Acute right and left circumflex marked sclerosis
13 J T	♂ 69	<3 days	Drainage abscess	Local	B. welchii infection	None	None	Death in 3 days	Acute and old LAD occlusion, marked sclerosis
14 S S	♂ 72	3 days	Cholecystectomy	Gas, oxygen, ether	None	Sweating, pain, weakness	Acute changes atypical	Recovery	
15 H G	♂ 66	3 days	Release of ventral hernia	Spinal	Intestinal obstruction	Dyspnea, cyanosis, shock	T <sub>1</sub> type	Death in 36 hrs	Acute left circumflex occlusion, old LAD left and right circumflex occlusion
16 H S	♂ 57	3 days	Vas ligation	Local	None	Pain, fever	Normal	Recovery	
17 J D	♂ 60	3 days	Paravertebral block	Local	None	Pain, shock	T <sub>1</sub> type	Death in 4 hrs	Acute and old LAD occlusion, marked sclerosis
18 S D	♀ 40	3 days	Laminectomy	Avertin, ether	Laryngitis	Shock, pain	T <sub>2</sub> type	Recovery	
19 S H	♂ 64	4 days	Prostatectomy	Spinal	Staphylococcus sepsis	Pain, shock	None	Death in 5 days	
20 A B	♂ 62	5 days	Prostatectomy	Local	None	Weakness, cyanosis, friction rub	Acute changes atypical	Death in 9 days	
21 L B	♂ 66	6 days	Transurethral resection	Spinal	None	Pain, dyspnea	T <sub>2</sub> type	Recovery	
22 H P	♂ 63	7 days	Polypectomy	Local	None	Pain	T <sub>1</sub> type	Recovery	
23 B K	♂ 48	7 days	Transurethral resection	Spinal	None	Dyspnea, weakness	T <sub>2</sub> type	Recovery	
24 B F	♂ 65	8 days	Cystostomy	Spinal	Pyelonephritis, uremia	Dyspnea, shock	T <sub>2</sub> type	Death in 12 days	Acute left circumflex occlusion, moderate sclerosis
25 L M	♂ 70	8 days	Tracheotomy	Local	Suppurative bronchopneumonia	Dyspnea, cyanosis	None	Death in 1 day	Acute right coronary occlusion, moderate sclerosis
26 E S	♀ 70	9 days	Mastoidectomy	Ether	None	Pain, friction rub	T <sub>1</sub> type	Recovery	1 yr later right coronary occlusion, moderate sclerosis
27 B F	♀ 44	9 days	Neostomy	Spinal	Tuberculous peritonitis	Shock, dyspnea, cyanosis	None	Death in 12 hrs	Acute right coronary occlusion, moderate sclerosis
28 I P	♀ 50	10 days	Thyroidectomy	Avertin gas, oxygen, ether	None	Pain, dyspnea	T <sub>2</sub> type	Recovery	
29 J S	♂ 73	10 days	Cholecystectomy	Ethylene	Cholangitis	Pain, dyspnea	Acute changes atypical	Death in 2 days	Acute LAD occlusion, marked sclerosis
30 I F	♂ 56	10 days	Orethidectomy	Spinal gas, oxygen, ether	None	Dyspnea, shock	None	Death in 12 hrs	Syphilitic occlusion of right coronary ostium
31 S J	♂ 51	10 days	Drainage of foot	Gas, oxygen	Gangrene of foot	Cyanosis, shock	None	Death in few min	Acute myocardial, moderate sclerosis, pulmonary embolism
32 A R	♂ 63	13 days	Prostatectomy	Spinal	Pyelonephritis	Cyanosis, pain, shock	T <sub>2</sub> type	Death in 1 day	Acute myocardial marked sclerosis
33 L G	♂ 46	13 days	Herniorrhaphy	Spinal	Bronchopneumonia	Pain	T <sub>1</sub> type	Recovery	
34 M R	♀ 56	18 days	Gastrectomy	Spinal	Abscess of stump and liver, anemia	Pain	T <sub>1</sub> type	Death in 6 days	Acute LAD occlusion, marked sclerosis
35 J D	♂ 60	21 days	Rectal resection	Gas, oxygen, ether	Cerebral metastases, bronchopneumonia	Dyspnea, cyanosis, shock	T <sub>1</sub> type	Death in 2 days	

\* Left anterior descending artery

orrhapy Similarly, the length of the operation varied from ten or fifteen minutes to several hours. Thirteen operations lasted one-half hour or less, twelve from one-half to one hour and ten from one to two hours.

**Anesthesia**—Postoperative occlusion was not associated with any particular type of anesthesia. Local anesthesia with procaine hydrochloride was administered in twelve cases, spinal anesthesia in ten and inhalation of nitrous oxide, ether or ethylene in five. A combination of inhalation with local anesthesia was employed twice, with spinal anesthesia twice and with avertin with amylene hydrate four times. Thus a variety of types, with manifold effects, was used.

**Postoperative Shock**—Surgical shock, as manifested by tachycardia, low blood pressure and the like, was present in three fifths of the patients, in half of these it was mild. Only five times did the occlusion manifest itself during the stage of shock.

**Intravenous Fluids**—Ten patients were given fluids by continuous drip for from one to three days after the operation. The amount was usually less than 2,000 cc daily. In eight of these patients the occlusion occurred during, or soon after cessation of, the infusion.

**Bed Rest**—The duration of stay in bed was determined, since, as in postoperative peripheral venous thrombosis, it might be significant in coronary artery occlusion. However, the occlusion occurred on the day of operation in eight patients who were ambulatory up to the time of operation. Seven patients were in bed from one to five days before the occlusion, four patients for one week and almost half the group more than one week.

**Mortality Rate and Causes of Death**—Sixty-six per cent of our thirty-five patients died, in five cases the diagnosis was made only at necropsy. This high mortality is due, in part, to the exclusion from our series of patients who survived the attack but in whom the diagnosis could not be confirmed. In eight of the twenty-three fatal attacks death was the direct result of the occlusion, in the remainder, other conditions, such as pneumonia, uremia, peritonitis and sepsis, were sufficient to produce death, and the occlusion was a

TABLE 2—Incidence Sex and Age Distribution of Postoperative Coronary Artery Occlusion

Number of postoperative attacks	35
Incidence in 625 attacks of coronary occlusion	5.6%
Sex	
Males	29 (4.8%)
Females	6
Age	
40-49 years	4
50-59 years	9
60-69 years	14
70-82 years	8

contributory factor. As a rule death occurred after the more severe operations. In two cases death was instantaneous and in seven it occurred on the same day as the coronary occlusion.

**Postmortem Examinations**—In nineteen cases necropsy disclosed definite sclerosis of the coronary artery. Acute occlusion was found in fifteen cases, acute infarction without occlusion in three cases, and stenosis of the right coronary ostium with infarction in one case. The conditions found varied from those previously reported in a large series of cases of coronary artery occlusion<sup>7</sup> in that multiple acute thrombi were present

in only one case and evidence of old occlusion was present in less than a third of the group, whereas in coronary occlusion in general, death usually is associated with multiple occlusions. Death in postoperative occlusion, when only one occlusion is present, is usually produced by or in combination with some other condition.

#### COMMENT

In this series of thirty-five cases of postoperative coronary artery occlusion there are several cogent reasons to support the belief that the operation pre-

TABLE 3—Time of Onset of Postoperative Coronary Artery Occlusion

Days After Operation	Number
1 to 3	18 (51.4%)
4 to 7	4 (11.4%)
8 to 14	11 (31.4%)
15 to 21	2 (5.7%)

cipitated the attack. In the first place, the fact that in one half the cases the occlusion occurred within three days after the operation, and in six during the first twenty-four hours, seems to indicate a direct association. Secondly, in eight years there have been only four instances of coronary artery occlusion among patients who have been in the medical wards for long periods because of chronic illnesses such as peptic ulcer, carcinoma, infections and blood dyscrasias. Were the original illness and rest in bed factors in the production of the occlusion, this condition would develop more frequently in such patients. In the third place, during the period in which our collected postoperative cases occurred, the total number of attacks of coronary artery occlusion treated in the hospital was 625. Therefore the thirty-five proved attacks following operation comprised more than 5 per cent of the total, and we believe that this incidence is significant. The actual incidence is doubtless greater than 5.6 per cent, if one bears in mind the thirteen patients who had probably suffered an occlusion but were omitted from the series because of the lack of electrocardiographic or post-mortem confirmation of the clinical diagnosis. Moreover, occlusions occurring after the third postoperative week were excluded, although it is possible that they were related to the operation.

The manner in which operation precipitates coronary artery occlusion is obscure, as is the mechanism of the formation of occlusion of the coronary artery in general, and therefore a discussion of this aspect of the problem is entirely speculative. Coronary artery occlusion is an end result of long standing, progressive sclerotic changes in the coronary vessels. It follows operation only when definite sclerosis of the coronary artery is present, as was demonstrated in our cases by preoperative electrocardiograms and post-mortem examinations. Occlusion occurs usually in persons in the seventh decade or older, when the sclerosis is advanced and the arteries are more liable to acute damage following operation.

It has generally been assumed that thrombosis on an arteriosclerotic plaque is the anatomic basis of acute coronary artery occlusion. However, the recent work of Winternitz and his co-workers<sup>8</sup> emphasizes the importance of hemorrhage into the plaque as a

7. Master, A. M., Dack, Simon and Jaffe, H. L. Mode of Death and Analysis of Fatal Cases in Coronary Artery Thrombosis. New York State J. Med. 37: 1-07 (Oct. 15) 1937.

8. Winternitz, M. C., Thomas, R. M. and LeCompte, P. M. Studies in the Pathology of Vascular Disease. Am. Heart J. 14: 399 (Oct.) 1937.

cause of the occlusion. Whether thrombosis or hemorrhage takes place, it may be attributed to alterations in the coronary circulation, such as changes in volume, pressure and speed of flow within the arteries and in the physical and chemical properties of the blood. Such changes undoubtedly occur following operation when some degree of shock, tachycardia and dehydration frequently exists. Shock is associated with a diminution in blood volume and a drop in blood pressure.<sup>9</sup> The venous return to the heart and the cardiac output are reduced. These factors may result in a decrease in the speed and volume of the coronary blood flow. Tachycardia also may produce an absolute or relative insufficiency of coronary circulation, since it shortens diastole and increases the oxygen need of the heart.<sup>10</sup> This effect is greatest in the presence of sclerotic coronary arteries. Dehydration, like shock, is associated with a diminution in blood volume and in addition with an increase in viscosity of the blood. As we have suggested all these factors may initiate changes in the walls of the coronary arteries leading to occlusion by hemorrhage or thrombosis.

Occasionally the diminution in coronary blood flow may be severe enough to produce ischemia of the myocardium resulting in myomalacia in the absence of occlusion. We have noted three such cases in our series.

Two additional factors associated with operation may be of significance in postoperative thrombosis. The first of these is the liberation of substances affecting the composition of the blood or acting directly on the arterial wall. In the destruction and dehydration of tissue, guanidine and histamine or similar substances may be set free.<sup>11</sup> In dogs, Hall, Ettinger and Banting<sup>12</sup> have produced hyaline degeneration and thrombosis of the coronary arteries with degeneration and infarction of the heart muscle by repeated injections of acetylcholine. However, they could not duplicate these results with histamine. It is significant that the most marked changes occurred in the older dogs. As we have already emphasized, postoperative occlusions also occur almost exclusively in patients 50 years of age or older. The second factor to be considered is the relation of infection to coronary occlusion, because of the presence of severe suppuration in many of our cases. While we concluded in the large series previously<sup>1</sup> mentioned that infection was too rare to be significant, it is possible that it played some part in the postoperative occlusions.

These considerations of the possible factors in operation leading to coronary artery occlusion are necessarily theoretical. It is probable that no one factor, but rather a combination of several, is sufficient to produce coronary occlusion in persons already susceptible because of long standing disease of the coronary artery. However, the relation of operation to coronary occlusion is of practical importance and, since a number of conditions associated with operation can be controlled, a study of these may throw light on the problem. It may lead to the formulation of criteria for operation in elderly persons and measures to be

employed during and after the surgical procedure. Such a study should include a comprehensive history and examination of the cardiovascular system, electrocardiograms and observations of the velocity of blood flow, blood volume, platelets, total protein and coagulability of the blood before and after operation. Particular attention should be given to the blood pressure, which should be recorded frequently during and immediately after operation. Coincidentally, minute anatomic studies are being made in our cases of postoperative and spontaneous coronary occlusion, with particular reference to the formation of the arterial occlusion. In the regard the relative importance of thrombosis on an atherosclerotic plaque and subintimal hemorrhage is being determined.

#### SUMMARY

Thirty-five proved attacks of coronary artery occlusion occurring after operation in the Mount Sinai Hospital during the years 1931 to 1937 were analyzed. Thirteen additional probable cases were excluded.

Previous coronary artery disease was probably present in every case. Two thirds of the patients were 60 years of age or older. Only four were under 50.

Surgical shock was present in 60 per cent of the cases.

Postoperative coronary artery occlusion presents a picture similar to pulmonary embolism, characterized by shock, dyspnea and cyanosis. Precordial pain is usually absent or is slight.

Sixty-six per cent of the patients died. In eight cases death was attributed directly to the occlusion, in the remainder it was associated with serious surgical complications.

Occlusion occurred in the first three days after operation in half the cases. Coronary occlusion appears extremely rarely in patients in the medical wards. The postoperative occlusions comprised 5 per cent of the total number of attacks in the hospital, an incidence which is significant.

The possible factors associated with the operation leading to coronary occlusion include surgical shock attended by a diminution in blood volume and a drop in blood pressure, tachycardia, dehydration and infection. Bed rest was not a factor.

In patients with coronary artery disease, operation may be followed by coronary occlusion. Therefore, patients over 45 should be thoroughly examined and when coronary sclerosis is present the question of surgical intervention and the choice of surgical procedure should be given due consideration.

125 East Seventy-Second Street

**Benjamin Rush Eulogized by Two Presidents**—Perhaps the most impressive tributes paid to Rush the man upon his death in 1813, came from two ex-Presidents, both of whom had numbered among his dearest friends. Even discounting the possible exaggeration arising from deeply stirred emotion, this characterization of Rush by John Adams retains a high degree of significance. As a man of science, letters, taste, sense, philosophy, patriotism, religion, morality, merit and usefulness taken all together, Rush has not left his equal in America nor that I know in the world. No less significant a personal tribute is that contained in a letter of Thomas Jefferson to Adams: "Another of our friends of seventy six is gone, dear Sir, another of the co-signers of the Independence of our country. And a better man than Rush could not have left us more benevolent, more learned of finer genius or more forward." —Deutsch, Albert. *The Mentally Ill in America*. New York: Doubleday, Doran & Co., Inc. 1937, p. 86.

9 Blalock, Alfred. Mechanism and Treatment of Experimental Shock Following Hemorrhage. *Arch. Surg.* 15: 762 (Nov.) 1927. Burch, J. C. and Harrison, T. R. The Effect of Ephedrine on the Circulation of Dogs During Spinal Anesthesia. *Surg. Gynec. & Obst.* 52: 953 (May) 1931.

10 Harrison, T. R. Failure of the Circulation. Baltimore: Williams & Wilkins Company, 1935, p. 91.

11 Harrison, Failure of the Circulation, p. 22.

12 Hall, G. E., Ettinger, G. H. and Banting, F. G. An Experimental Production of Coronary Thrombosis and Myocardial Failure. *Canad. J. A. J.* 3: 49 (Jan.) 1936.

# BASAL ANESTHESIA THE USE OF EVIPAL SOLUBLE BY RECTUM

ALFRED E. JONES, M.D.  
CHICAGO

The term basal anesthesia has been used in the literature by several authors in at least three different senses. For the sake of clarity it seems desirable at the outset to differentiate these expressions.

1 Basal anesthesia may mean simple induction anesthesia, with prompt recourse to inhalation or regional anesthesia as soon as the patient has become unconscious. In this sense it is synonymous with basal hypnosis.

2 It may refer to a deeper sleep, carried to the point of complete surgical anesthesia and maintained during the early stages of a more or less prolonged intervention, but still frankly constituting an auxiliary and preliminary procedure, whose purpose it is to usher in smoothly the chief anesthetic agent under which the substantial part of the operation is to be performed. Here the inhalation anesthesia is still intended to be a definite part of the procedure and is more than terminal when the operation is one that cannot be hurried.

3 Basal anesthesia may mean a profound state of unconsciousness, ushered in by suitable premedication and pushed to a plateau of tolerance, which is held almost indefinitely as the backbone, so to speak, of the anesthesia but is finally supplemented by brief recourse to inhalation anesthesia when, in the surgeon's judgment, the limit of safety has been reached. Here the main work is done under the basal anesthetic, and the resort, in the terminal stages of the operation, to some inhalation anesthetic such as ethylene or ether is more or less incidental.

It is in this third sense that the German authors, who have written most on the subject, use the term, especially in connection with intravenous evipal soluble basal anesthesia. Thus Anschutz,<sup>1</sup> who in 1933 had already studied a collection of 6,400 operations under evipal soluble narcosis (known as evipan sodium narcosis to its German originators), expressed the opinion that "evipan is good as an induction or preliminary anesthetic but this is quite different from basal anesthesia." On the other hand, by way of contradistinction, he regarded pernocton, because of its long, slow elimination, as "not adapted to premedicamentous use but as excellent for basal narcosis, since it holds a plateau of tolerance for a long time." He added "Evipan is pharmacologically not a good basal anesthetic because it is too quickly decomposed. The supplementary anesthetic must predominate quite early. If full surgical anesthesia is accomplished with evipan, and then an inhalation anesthetic is used merely to complete the operation the drug becomes dangerous."

On the other hand, Coe<sup>2</sup> of Seattle uses the term basal anesthesia to mean "a state of unconsciousness of such degree that the patient is unaware of the events incident to his removal from his bed to the operating room and of the administration of the supplemental anesthesia. This also implies such a degree of amnesia that there is no subsequent memory of the operation."

In discussing the rectal use of evipal soluble as a basal anesthetic I shall use the term in Coe's sense. While it is perfectly true that evipal soluble is today being used in all these ways and also as a brief independent

anesthetic for minor surgery, as Widenhorn<sup>3</sup> has recently pointed out, I am speaking here not of its independent use nor of its employment as the backbone of the anesthesia but always of its preliminary use immediately in advance of an inhalation or local anesthetic, to allay the anxiety of the patient, to accomplish the easy induction of general anesthesia and to promote better relaxation, while at the same time using only from one third to one half of the usual amount of ethylene, ether or other general anesthetic.

## HISTORICAL

It is now almost five years since Weese<sup>4</sup> in Germany engaged in the accurate study of the effects of evipan sodium, or evipal soluble, which, as the sodium salt of C-C-cyclohexenyl-N-methyl barbituric acid, Kroft and Taube had isolated in 1932 in their search for a new barbiturate that should lack in the field of anesthesia the disadvantages of the older barbiturates.

The introduction of evipal soluble as an intravenous anesthetic is therefore already an old story. Its use spread like wildfire in Germany and the extent to which it has now been adopted the world over is so vast that it defies exact figures. Veal and Hamilton<sup>5</sup> wrote in 1936 that it had been used "perhaps in 200,000 cases." Gwathmey,<sup>6</sup> earlier in the same year, said that it had been used intravenously "over 800,000 times in Europe," giving Killian<sup>7</sup> as his authority. But meanwhile no less an authority than Baetzner<sup>8</sup> with 2,000 evipan anesthetics to his own credit without a death, announced to the congress of surgeons held in Berlin in the fall of 1935 that the number of cases in which evipan had been used was estimated as already over one and a half million and that 550 original articles had been written on the subject, largely in Germany. The number of known deaths, Baetzner stated, according to the manufacturers, then stood at sixty. These were mostly due to "errors of dosage and misunderstanding of direction."

Baetzner, however, pointed out that the dosage is the alpha and omega of evipan anesthesia and that every patient is an individual in his degree of tolerance to this fascinating but capricious barbiturate. If by chance detoxification is for any reason hindered, as may happen in the case of an impaired liver or faulty circulation, a very slight degree of overdosage may kill through the accumulation of an excessive concentration in the blood, such as would be perfectly tolerated by some other individual without such functional impairment.

This relative uncertainty as to the dosage, combined with the uncontrollability of every intravenous anesthetic, once it has entered the blood, has proved at least disconcerting to those who have found in evipal soluble, in other respects, an ideal basal anesthetic. The smoothness of induction, the rapidity with which the patients fall into a quiet sleep, often even within the span of a minute, without struggle or excitement of any kind, provided there has been sedative premedication, the early muscular relaxation, the full and regular pulse, the prompt return to consciousness, but with a pleasant postoperative drowsiness that induces additional quiet sleep until the immediate postoperative pain

<sup>3</sup> Widenhorn H. L. Evipal Anesthesia and the Combination of Intravenous with General and Local Anesthesia. *Surg. Gynec. & Obst.* 64: 89-93 (Jan.) 1937.

<sup>4</sup> Weese H. Pharmakologie des intravenösen Kurznarotikums Evipan Natrium. *Deutsche med. Wchnschr.* 59: 47-48 (Jan. 13) 1933.

<sup>5</sup> Veal J. R. and Hamilton V. S. Further Observations on Evipal Anesthesia. *Anesth. & Analg.* 15: 231-236 (Sept. Oct.) 1936.

<sup>6</sup> Gwathmey J. T. Rectal Administration of Evipal Soluble. *Am. J. Surg.* 32: 411-416 (June) 1936.

<sup>7</sup> Killian Han. The New German Evipan Sodium Anesthesia. *Anesth. & Analg.* 15: 177-183 (Sept. Oct.) 227-232 (Nov. Dec.) 1934.

<sup>8</sup> Baetzner Wilhelm. Die Evipan Natrium Narkose. *Rückblick und Ausblick.* *Arch. f. klin. Chir.* 153: 32-33 Oct. 1935.

<sup>1</sup> Anschutz W. Die Kurz- und Rauschnarkose mit Evipannatrium. *Arch. f. klin. Chir.* 153: 716-734 1933.

<sup>2</sup> Coe H. E. Basal Anesthesia in Children's Surgery. *Canad. J. Surg.* 35: 390 (Oct.) 1936.



has abated and, finally, the absence of postoperative nausea and vomiting—all these are advantages of a high order that place intravenous evipal soluble in a class by itself in the forefront of basal anesthetics when it is in the hands of an anesthetist who is aware of the idiosyncrasies of his patients. But it is just this difficulty of dosage and the irrecoverability of the drug after it enters the blood that prevents intravenous evipal soluble from being the ideal anesthetic.

#### RECTAL EVIPAL SOLUBLE ANESTHESIA

In view of these considerations, the announcement by Gwathmey<sup>6</sup> early in 1936 that he was using evipal soluble as a basal anesthetic by the rectal route with remarkable results was of the greatest interest. Like others, I had been using intravenous evipal soluble and my results had been gratifying, but always there had been that latent uncertainty of how the patient would react.

Gwathmey first tried the rectal method in the laboratory, using rabbits and dogs. Although rabbits were found not to be good animals for rectal experiments, he was able to prove even in these that with 5 mg of morphine per kilogram of body weight and 50 mg of evipal soluble per kilogram, seven of nine rabbits could be anesthetized, with no deaths. His experiments on dogs established conclusively that these could be anesthetized for forty minutes by rectal administration of a minimal dose of 40 mg of evipal soluble per kilogram of body weight in a 10 per cent aqueous solution. Larger doses produced longer anesthesia, with complete muscular relaxation occurring within three minutes, with no visible impairment of respiration or heart action. In one dog rectal administration of 175 mg per kilogram produced surgical anesthesia lasting seventeen hours.

From these experiments Gwathmey concluded that the margin of safety when evipal soluble is introduced into the rectum of dogs is very great, even when an injection of morphine, increasing the depressing action, has preceded it. He found that the therapeutic index (minimum lethal dose divided by anesthetic dose) is over 40 for rectal administration, as against 3.3 when administration is by the intravenous route. It was thus clear not only that its rectal use was safe but also that a very much longer anesthesia resulted, which is of great importance for major operations.

When Gwathmey published his report in 1936 he had made clinical use of the rectal method of administration of evipal soluble in more than 150 cases of the most various nature, using it only for preanesthetic medication and supplementing it with inhalation of ethylene and oxygen. He stated that the results were eminently satisfactory, there were no changes of any consequence in pulse, respiration or blood pressure, not even such moderate changes as have frequently been observed after intravenous administration. So far as I have been able to judge from a careful study of the literature, Gwathmey is the pioneer in this rectal use of evipal soluble. I have been able to find no other report of patients thus treated and placed on record.<sup>8a</sup>

#### REPORT OF 518 CASES OF RECTAL EVIPAL ANESTHESIA

Encouraged by Gwathmey's results, we determined to give the method a thorough trial at the Michael Reese Hospital. As a result, I am able today to report

518 cases in which, during the last twelve months evipal soluble was used rectally, principally as a preliminary anesthetic to provide basal anesthesia before administration of ether, ethylene or local anesthesia. The cases represented a wide variety of surgical conditions encountered in general surgery, urologic, orthopedic and gynecologic surgery, many of a major nature as well as many cases in the minor class. In a certain number of cases in which only a fleeting anesthesia was required we have used evipal soluble alone, by rectum, as for example in the removal of stitches and drains in children, in the administration of drugs for excretion urography and in three cases for relief of pain in renal colic. It is worthy of mention that in excretion urography in children it has meant all the difference between a clear film of definite diagnostic value and a hazy or less roentgenogram.

These 518 cases fall roughly into four groups: (1) kidney, ureter and bladder conditions, 203, (2) general surgical, orthopedic and gynecologic, 176, (3) in children, for excretion urography, removal of stitches, drains and the like, 136, and (4) renal and ureteral colic, three cases.

#### DOSAGE

The dose is determined chiefly with reference to body weight as in intravenous administration, but on a different quantitative basis, the dose being larger for rectal use. Thus, for preanesthetic rectal administration the patient, if in good general condition, receives 0.2 cc. of a 10 per cent aqueous solution of evipal soluble for every pound of body weight (instead of 0.06 cc. as in intravenous administration), making a total of 30 cc. of the 10 per cent solution for a man weighing 150 pounds (68 Kg.) that is, a dose of 3 Gm of evipal soluble.

#### TECHNIC

Our technic, which is very simple, has been essentially that of Gwathmey. A preliminary enema of sodium bicarbonate solution is generally given two hours before the rectal administration of evipal solution. No soap-suds enema is required such as is given before oil-ether anesthesia by rectum. From forty to sixty minutes before the time for the evipal solution by rectum, morphine or dilaudid is injected hypodermically, thus producing a mental calm and freedom from agitation, which combination furnishes the foundation for a peaceful sleep of adequate duration and also prevents any resistance that might be offered to the rectal procedure.

The solution of evipal is prepared by dissolving 3 Gm of evipal soluble in 30 cc of distilled water, which is then drawn into a 30 cc glass syringe. A very small catheter is attached to the syringe, care being taken that its caliber is such as to fit the syringe exactly, so that there shall be no loss of the anesthetic solution through leakage.

The patient is placed on his left side in a comfortable position as for any ordinary enema, after which the catheter, well lubricated, is inserted for about 4 inches (10 cm) into the rectum. The entire contents of the syringe are then rapidly injected. The catheter is clamped and left in situ until the patient falls asleep, which usually occurs in from five to ten minutes, but occasionally in as little time as two minutes.

#### ADVANTAGES OF RECTAL ADMINISTRATION

The rectal injection of evipal soluble has the great advantage that it can safely be carried out by a trained nurse without the presence of a professional anesthetist. The relatively slower action of the anesthetic as it is gradually absorbed by the colonic mucosa

<sup>8a</sup> Since this article was written two other articles on the same subject have been published:  
Hogan Howard Am J Surg, November 1937  
Harrison J H and Dumphy J E New England J Med January 1938

assures safety that can never be absolute in an intravenous injection. Sudden accidents do not happen. There is never any dropping of the jaw to jeopardize the open airway.

The injection, usually given one-half hour before the time set for operation, is carried out in the quiet of the patient's own room, just where he will find himself on waking after the operation is concluded. If the patient is a child, which is very often the case—since this method is particularly indicated in children—it is very simple to explain a procedure with which the child is already probably familiar without the psychic horror of a needle inserted in a vein. The earlier sedative, which can be given to a child by mouth, will have taken the edge off his fears, and cooperation will be easily enlisted.

As the evipal solution, freshly mixed, is entirely non-irritating, there is little tendency for the small amount of fluid to be expelled. Should there be any signs of spasm or straining during instillation, the syringe should be immediately lowered below the level of the rectum to remove pressure and permit some of the solution to flow back into the syringe and to allow any gas that may be present to pass out. At the close of the injection, pressure should be maintained over the anus for five minutes.

Absorption from the colon begins almost at once. When Gwathmey introduced his oil-ether colonic anesthesia he was able to detect ether being exhaled from the lungs within three minutes of the beginning of the procedure. The absorption of evipal is not less rapid and constant. It is not so active, however, as to prevent the washing out of the anesthetic if occasion should seem to demand it, in the early stages of introduction. If there should be any reason to suspect that anesthesia is becoming too deep in the first fifteen to twenty minutes following the injection, it is easily possible to siphon out the portion not yet absorbed, thus preventing any higher concentration of evipal in the blood. In none of our cases, however, have we had occasion to do this.

The quiet sleep that is prolonged for several hours after the operation is completed under ether or ethylene is evidence of the superiority of this method over the intravenous, in which, to accomplish the same duration and level of narcosis, one must keep on putting fractional doses of evipal into the blood stream, under the constant watchful eye of a skilful and experienced anesthetist, who must be ready at an instant's notice to administer pyridine betacarboxylic acid diethylamide (coramin) or other cardiac and respiratory stimulant if the anesthesia becomes too deep. Gwathmey asserts that since evipal soluble by rectum affects only the sensory nerves and has no effect whatever on the heart, it is an unusually safe basal anesthetic. Not even when the amount administered far exceeded the standard dose of 0.2 cc. per pound has he ever had to use either metrazol or carbon dioxide and oxygen.

We can absolutely confirm Gwathmey's experience. After long use of evipal soluble intravenously under a wide variety of conditions and in patients requiring the most varied kinds of surgical intervention, we do not hesitate to say that the results we are obtaining from the rectal use of evipal soluble are in no way inferior to those which we have attained by the intravenous method, and the safety provided by the rectal administration appears to us so incomparably great that we have come to regard it as actually superior to the earlier method, in which an injection made too rapidly might easily lead to an overdose.

#### RESULTS IN OUR SERIES OF 518 CASES

The results in all our cases have been most gratifying. In practically every case the patient fell into a quiet, restful sleep within five to ten minutes of the time the injection was given. There was complete relaxation, with deep rhythmic breathing and good heart action. The blood pressure dropped slightly in most cases but not more than a few millimeters. As a terminal or supplementary anesthetic we made use of ether or ethylene in the majority of cases. We found the circulatory and respiratory changes following rectal administration of evipal soluble to be practically nil compared with those following other preanesthetic drugs. In eleven cases (2.1 per cent) there has been marked confusion or delirium on waking. Most of these occurred early in our series, and they can properly be attributed to an idiosyncrasy to barbiturates which some patients manifest. This agitation can be materially lessened by making sure that the patient has had no other barbiturate by mouth or otherwise for at least twenty-four hours before the administration of the evipal soluble.

#### COMMENT

The use of some preanesthetic sedative is practically universal in present day surgery. It was realized not only that a smoother anesthesia could thus be produced, with great psychic advantage to the patient and better muscular relaxation for the benefit of the surgeon, but also that such preoperative medication would result in less inhalation anesthetic being required, since the drugs would reinforce one another. The presence of postoperative pain as a rule necessitates the use of some hypnotic or analgesic. It was a distinct step in advance, therefore, when surgeons began to give this sedative injection before instead of postponing it until after operation. Patients who would otherwise have been agitated with nervous fears were thus enabled to approach operation with perfect calmness.

To secure this state of mental relaxation, morphine, dilaudid, scopolamine, chloroform induction, evipal soluble intravenously and various older barbiturates, notably pernoston, sodium amytal and pentobarbital sodium, are all employed, and each has its adherents. A comparison of the relative efficiency of these agents may therefore be in order.

*Morphine*—No premedicament has had a longer history as an induction anesthetic than morphine, usually combined with atropine or scopolamine. The great weight of authority was with this alkaloid until the intravenous use of evipal soluble came on the scene and even since the latter's arrival morphine continues to enjoy the position of choice as a preliminary medicament for the induction of evipal anesthesia itself. Its use prolongs the anesthesia, prevents muscular spasm and completely abolishes restlessness through its action on the cerebral cortex. It produces a preoperative euphoria unequaled by any other agent, lessens excitement during induction, relaxes the muscles, diminishes liability to shock and lengthens the recovery period so that there is less postoperative discomfort or pain. But, on the other hand, morphine depresses the respiratory apparatus, blocks secretion, especially through the kidney function and, most of all, stimulates the vomiting center to such an extent that some patients actually prefer to accept postoperative pain.

*Scopolamine* (levorotatory)—This is hypnotic and antispasmodic in dosage of from  $\frac{1}{200}$  to  $\frac{1}{100}$  grain (0.3 to 0.6 mg.). Like morphine, it depresses the cerebral cortex, the respiratory center, the heart action

and the reflexes. Its combination with morphine enhances these effects and tends to prevent a stage of excitement that may precede its sedative effect if it is given alone. While full amnesia is not invariably attained by this combination the sedative effect is very striking, making a subsequent nitrous oxide-oxygen anesthesia much more satisfactory. Just as with morphine alone, nausea tends to follow its use, and in certain cases scopolamine promotes a hemorrhagic tendency in incision of the skin and mucous membranes.

*Dilaudid*—This opium derivative, far superior to morphine in the opinion of many meets the demands for an efficient preoperative sedative, offering the quickest and most intensive action, combined with a minimal effect on the gastro-intestinal tract and the least danger of habit formation. All psychic and motor excitation are reduced to a minimum before narcosis, and a quiet sleep may be expected within ten minutes at the least after intramuscular injection. Its use is cheaper than that of morphine, a lesser quantity is required and the amount of inhalation anesthetic necessary is greatly diminished. Gwathmey found that he obtained better results with rectal administration of evipal soluble when he substituted premedication with dilaudid for that with morphine. Postoperative nausea and vomiting have been entirely absent, in contrast with 16 per cent of patients being thus affected when morphine hydrochloride was used. Our own experience confirms these observations.

*Chloroform*—As an induction anesthetic chloroform has many serious disadvantages. While it is inhaled more easily than ether and is generally regarded as pleasanter to take, the sudden intake of an excessive concentration of chloroform stimulates the vagal center in the medulla to inhibit the heart's action. Acting as an irritant to the cardiac muscle, it sometimes leads to ventricular fibrillation. Collapse followed by resuscitation may again be followed by secondary collapse. Postoperative vomiting and headache are frequently late sequels to its use—the result of delayed poisoning, with symptoms of shock and not infrequently complications of the chest. As the induction stage is the most risky period with chloroform, many anesthetists who like it for a maintenance anesthesia will not use it for induction.

*Barbiturates* (exclusive of evipal)—The barbiturates came into use in 1903, when veronal led the way and was much used as a basal anesthetic to precede chloroform. Since then thirty barbiturates have been found, which have been used as hypnotics or basal anesthetics. Any barbiturate properly administered before anesthesia is capable of producing a mild surgical anesthesia, but most of them tend to produce subsequent headache, nausea and vomiting. The best known and most extensively used are sodium amytal (sodium isoamylethylbarbiturate), pernoston (the sodium salt of secondary butyl-beta-bromallylbarbituric acid) and pentobarbital sodium (sodium ethyl-1-methyl-butyl barbiturate). Any of these may be administered by mouth, vein or rectum. All have had their ardent adherents as preanesthetic agents, but all carry their dangers. When injected intravenously, the amount required to produce complete anesthesia is dangerously near the fatal dose. This is especially true of pernoston. The latter is pleasant to take and consciousness is lost fairly quickly, but the margin of safety is narrower than that of the other two barbiturates named. Sodium amytal, while effective, causes too great a drop in blood pressure if given too

rapidly and may bring on pulmonary edema and pneumonia if given in excessive dosage. The postoperative danger of the tongue falling back is considerable. Pentobarbital sodium is the most efficient hypnotic of the three, but it was pentobarbital sodium (nembutal) that led Lundy<sup>9</sup> in 1931 to conclude that intravenous anesthesia by means of the barbiturates alone is not justified because of occasional untoward results. As a basal anesthetic, however, it provides a pleasant method of bridging the gap between consciousness and unconsciousness before general anesthesia. All these barbiturates decrease nausea to some degree, so that vomiting, if present, is slight and is seldom remembered.

In 1930 Fitch, Waters and Tatum,<sup>10</sup> after prolonged laboratory and clinical research, reported "Amytal produced a much longer sleep than pernoston or nembutal. Occasionally excitement or delirium follows the use of all three drugs. The long period of detoxification and depression after administration of amytal and other long acting barbiturates constitutes a serious impairment of their value for surgical purposes. The more rapidly acting barbiturates furnish a distinct improvement and indicate possibilities and direction for further improvement." Thus was the way pointed toward evipal soluble.

*Intravenous Evipal Soluble as a Basal Anesthetic*—With the introduction of evipal soluble, the long awaited quick-acting and quick-receding basal anesthetic was realized. Though nonvolatile, it surpasses the volatile anesthetic agents in the rapidity of its detoxification and elimination. While it has a relatively short tolerance stage (from ten to twenty minutes) as compared with other barbiturates, this stage can be prolonged at will by giving fractional doses and repeating the administration as often as signs of returning consciousness appear, thus keeping the patient just within the limits of full anesthesia. This was done at first with the greatest possible caution, but today a constantly increasing number of anesthetists are pushing the use of evipal soluble as a complete anesthetic. I am concerned here with its use only as a basal anesthetic.

The rapidity with which the patient falls asleep is truly dramatic, he may stop talking in the middle of a sentence, and consciousness may be lost within fifteen to twenty-five seconds after injection is begun. His color does not change, his breathing is deep and rhythmic, his heart action is unaffected. A slight fall of blood pressure usually occurs, but this returns to its former point on recovery. No changes in blood chemistry occur, and there is no postoperative nausea. In some cases in which morphine premedication has been employed before the injection of evipal soluble, the vomiting that occurs is due to the former drug, not to the evipal.

But evipal soluble has the disadvantage of all intravenous drugs that, once injected, it cannot be recovered nor can its action be reversed. Its very speed is again such reversal, so that, in case of untoward effect, some cardiac and respiratory stimulant such as coramin or metrazol must be close at hand and immediately administered or the respiration and heart action may stop. In addition, as Dunphy and his associates<sup>11</sup> have recently emphasized, this inherent danger is increased by a gre-

<sup>9</sup> Lundy, J. S. Experience with Sodium Ethyl 1-Methyl Barbiturate (Nembutal) in More Than 2,300 Cases. *S. Clin. America* 11: 909 (Aug.) 1931.

<sup>10</sup> Fitch, R. H., Waters, R. M. and Tatum, A. L. Barbiturates as Hypnotics in Surgery. *Am. J. Surg.* 40: 110-114 (July) 1930.

<sup>11</sup> Dunphy, J. E., Alt, R. E. and Reilins, W. A. Evipal: A Clinical Study of 300 Cases. *Surg.* 1: 275-275 (Feb.) 1932.

individual variation in the effective dose. It follows, then, that certain patients are highly resistant to evipal soluble, while certain others are inordinately sensitive to it. The impossibility of recognizing these types in advance of administration is what constitutes the danger in its intravenous use. While the actual number of deaths attributable to this cause is small (sixty in perhaps one and one-half million cases), these fatalities must nevertheless be borne in mind and should serve as a warning when a choice is possible between the uncertainties of intravenous administration and the safety of the rectal use of evipal soluble.

#### CONTRAINDICATIONS

There are not many contraindications to the administration of evipal soluble by rectum. Just as is the case in its intravenous use, subjects known to have impaired liver function or myocardial degeneration are poor risks, since it is known that evipal soluble is detoxified in the liver, and a good circulation is required to carry it there as well as to remove its disintegrated components. Regardless of which organ does the eliminating of an anesthetic, its inactivation, as Weiss<sup>12</sup> well says, is always dependent on proper circulation. This, rather than the danger from direct action on the heart, is one of the main reasons why the use of non-volatile anesthetics is potentially dangerous when the individual tolerance is not known.

Anemic and weak persons should not be given evipal soluble, nor should those in a cachectic or septic condition. There are also grounds for withholding it from asthmatic patients, some of them having had attacks during its administration. It should also be denied to those subjects who have an abnormally low blood pressure and to those who have recently received other medication with barbiturates.

Beyond these obviously unsuitable groups there are no known contraindications to the rectal administration of evipal soluble.

#### CONCLUSIONS

1 The rectal administration of evipal soluble as a basal anesthetic has been found to be a practical and satisfactory method, eliminating certain dangers inherent in the intravenous use of this powerful barbiturate.

2 A report is made of 518 cases thus managed at the Michael Reese Hospital, representing a wide variety of different surgical conditions and operative procedures.

3 The technic is simple and requires no special training.

4 The administration can be carried out readily by any trained nurse without the presence of a professional anesthetist.

5 In no case did there occur any untoward symptom during operation, and in only 2 per cent of the cases did we observe any postoperative excitement.

6 The rectal method of administration has the advantage of producing a smooth basal anesthesia of extended duration, without the necessity of adding continued fractional doses, and it requires only from one third to one half of the amount of ether or ethylene for supplementary anesthesia.

7 The method offers all the advantages of intravenous evipal soluble without the disadvantages inherent to all intravenous anesthetics.

108 North State Street.

## EMERGENCY TREATMENT IN ASTHMA (ASTHMATIC CRISIS)

G. L. WALDBOTT, M.D.

DETROIT

In the treatment of allergic asthma one is occasionally confronted with a serious emergency which has received little attention in recent textbooks. Its clinical picture is characterized by severe collapse with constant extreme dyspnea to the point of exhaustion. Some authors<sup>1</sup> refer to this condition in speaking of "status asthmaticus." Others have termed it "intractable asthma," thus indicating the inadequacy of the generally recognized methods of treatment. Fuchs<sup>2</sup> has recently called this condition "asthmatic crisis." This probably is the most appropriate term. It implies that this condition results either in death or in at least a temporary amelioration of the asthmatic condition.

Concerning its onset, Clarke states that the asthmatic crisis usually climaxes a chronic state of asthma, but it may also occur during a series of acute asthmatic attacks. On the basis of its occurrence in an individual who has previously been suffering from asthma, it is possible to draw a definite line distinguishing it from allergic shock. The latter condition would in every other respect be identical with the asthmatic crisis were it not possible to arise in any type of other sensitization besides asthma.

#### MECHANISM

Because of this close relationship,<sup>3</sup> certain data obtained on the origin of allergic shock will aid in the understanding of the asthmatic crisis. The syndrome of allergic shock,<sup>4</sup> it should be borne in mind, results, first, from extreme sensitivity, secondly, from an excessive amount of an antigen for the simultaneous absorption of several antigens to which sensitivity exists or, thirdly, from too sudden absorption (intravenous) of a dose of antigen which ordinarily would not produce shock. The manifestations of allergic shock depend largely on what organs have previously been affected.<sup>5</sup> In the most common instance of allergic shock, namely, the "constitutional reaction" in a hay fever patient after an injection of an excessive dose of pollen extract, the skin and the upper respiratory tract are primarily subject to the allergic lesion, namely, the wheal, but practically any other organ may also be affected.<sup>6</sup> In patients with chronic asthma, however, the sudden influx of an excessive amount of injected antigen affects, primarily, the pulmonary tissue, causing severe asthma without the association of urticaria, nasal and conjunctival symptoms which are otherwise common. The same is true if the routes of entry of the antigen are other than by injection. Thus the asthmatic crisis can be considered as allergic shock in a patient whose "shock organ" has previously been the lungs, because he had been suffering from asthma.

Concerning the sources and the clinical manifestations of allergic shock induced by means other than injection

1. Clarke J. A. Status Asthmaticus of Severe Subacute Asthma. *J. Allergy* 4: 481 (Nov.) 1933. Sterling A. T. Status Asthmaticus. *ibid.* 6: 189 (Jan.) 1935. Kahn I. S. Status Asthmaticus, *ibid.* 8: 158 (Jan.) 1937.

2. Fuchs A. M. The Interruption of the Asthmatic Crisis by Tri-bromethanol (Avertin). *J. Allergy* 8: 340 (May) 1937.

3. Some of the authors mentioned do not even make a distinction between the two conditions.

4. Waldhott G. I. Systemic Reactions from Pollen Injections. *J. A. M. A.* 96: 1848 (May 30) 1931.

5. Waldhott G. L. and Ascher M. S. The Role of Accidental Puncture of Veins in the Production of Allergic Shock. *Ann. Int. Med.* 9: 1232 (March) 1936.

6. Waldhott G. I. Allergic Shock from Substances Other than Pollen and Serum. *Ann. Int. Med.* 7: 1309 (April) 1934.

<sup>12</sup> Weiss Soma. The Clinical Use and Dangers of Hypnotics. *J. A. M. A.* 107: 7104-7109 (Dec. 26) 1936.

inhalation of helium gas as reported by Barach<sup>12</sup> and by Maytum and his associates<sup>19</sup> may in some instances be explained by the displacement from the alveoli of air which is laden with harmful inhaled antigens and by its replacement with the dust-free gas. Therefore, its use is indicated even when no cyanosis is present.

In order to maintain the patient's nutritional state, intravenous injections of from 25 to 50 per cent solution of dextrose may be given. In addition to its caloric value, the osmotic effect of this hypertonic solution may aid in the removal of edematous fluid from the affected lungs. Mainly for the latter purpose, Gay<sup>20</sup> recently suggested the intravenous administration of 100 cc of 50 per cent sucrose to which 0.5 cc of 1:1,000 epinephrine solution was added. He observed instant cessation of extreme attacks in six asthmatic patients. Some of his patients had previously failed to respond when intravenous injections of dextrose and epinephrine were given individually.

Ascher and I have for several years used blood transfusions from either nonallergic persons or treated, symptom-free asthmatic patients. The principal purpose of these transfusions is their nutritional value. We considered it possible also that a certain immune effect might be established which could be compared to that of transfusions in certain infectious diseases. This conception is made more plausible through the recent experiments of Cooke and his associates<sup>21</sup>. They report the presence of protective or immune substances against specific antigens in allergic patients who had become symptom free. Whether or not these substances also exist in normal individuals is not indicated. Our own experiments along these lines have not as yet been conclusive. Clinically, however, transfusions from both normal and symptom-free asthmatic patients were found very valuable. An intradermal skin test with the donor's blood and a preliminary small intravenous injection is first given in order to minimize the risk of untoward allergic reactions. (These might occur if the patient is sensitive to antigenic substances present in the blood of the donors<sup>22</sup>). Between 200 and 400 cc of blood is then given in the usual manner. The patient's exhausted and debilitated state nearly always responds. With the precautions outlined I have not had any allergic reaction in more than forty transfusions given in cases of this type and in other cases of allergy.

4. *Hyposensitization*—Specific therapy has received very little attention in the literature on severe asthma. In my experience it is as indispensable in this emergency as in any other type of allergy. Waldbott and Ascher<sup>23</sup> have recently enlarged on the method of rapid hyposensitization. This is based on the observation that a patient with hay fever may obtain instant relief during the hay fever season following one or several injections of specific extract, provided the dose is large enough to produce a moderately sized local wheal and not too large to cause a generalized reaction. Guided by this principle of giving a sufficiently large amount and, at the same time, avoiding an overdose, this treatment can be made both effective and safe. The

antigens chosen should be those which were found to be the main causative agents of this attack, on the basis either of skin tests or of clinical experience. During the summer months, the respective pollen in the air at the time of the attack should always be considered as a potential cause<sup>24</sup>. A scratch test should first be performed in order to gauge the patient's tolerance. In case of a strongly positive skin reaction no injection should be given, since repeated scratch tests with the antigen may accomplish a desensitizing effect. If the test is negative or slightly positive, an initial dose of a highly diluted extract (as low as from 1:10,000 to 1:1,000,000) is administered, preferably intracutaneously, and its effect carefully watched. If the injection does not produce a wheal, the dose can be worked up rapidly at intervals of one half to one hour until a local wheal appears at the site of the injection. From now on, future injections should be cautiously gauged and the intervals between them lengthened until the effect of the previous injection has well subsided. This may require from two to twelve hours and more. If properly gauged, the asthmatic attacks begin to clear up simultaneously with the development of a wheal, sometimes as dramatically as after an injection of epinephrine. If improvement does not ensue, other antigens should be chosen, because the one administered previously may not be one of the dominant agents in the production of this attack. During the course of the treatment one should constantly be watchful for an excessive local reaction at the site of injection and of an aggravation of the attack by the treatment. The injections should then be discontinued for several hours or for days until the flareup is thoroughly controlled. When the injections are started again, considerably smaller doses should be employed. If carried out with these precautions, rapid hyposensitization treatment constitutes the method of choice in this emergency.

#### BRONCHOSCOPIC TREATMENT

In addition to these methods of treatment, another means of therapy should be available to all those treating a patient with severe asthma, namely, bronchoscopy. It should be held in readiness in case the other measures fail. This treatment is often too indiscriminately used in asthma, especially if advocated for the administration of iodized oil<sup>25</sup>. In the asthmatic crisis, however, especially when the emergency is extreme, the introduction of a bronchoscope into the lungs should be regarded as a life-saving measure. Its purpose is to remove the thick, tenacious mucus, which is such a grave source of danger to the asthmatic patient, and to dilate spastic bronchi.

In a review of the records of 1,431 allergic asthmatic patients, it was found that there were seventy-six who had been hospitalized on one or more occasions because of unusually severe attacks. In only eight cases did bronchoscopic treatment have to be resorted to. Extremely severe and "intractable" attacks promptly subsided on the removal of mucus from the bronchi in all but one case.

Mrs. R. L. B., aged 32, had been in a severe state of asthma for six weeks. She had given strongly positive cutaneous reactions to various antigens, especially grass pollen. During a two weeks stay at Grace Hospital she had shown practically no response to any of the aforementioned measures, including an attempt at hyposensitization. On bronchoscopy, considerable

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20 Gay L. N. Communication at the round table discussion on Intractable Asthma at the New York City meeting of the Society for the Study of Asthma and Allied Conditions Dec. 11, 1937.

21 Cooke R. A., Barnard J. H., Hebbald Selian and Stull Arthur. Serological Evidence of Immunity with Coexisting Sensitization in a Type of Human Allergy (Hay Fever). J. Exper. Med. 62: 733 (Dec.) 1933.

22 Ramirez M. A. Horse Asthma Following Blood Transfusion. J. A. M. A. 73: 954 (Sept. 27) 1919.

23 Waldbott G. L. and Ascher M. S. Further Observations on Rapid Hyposensitization. Ann. Int. Med. 10: 1556 (April) 1937.

24 Waldbott G. L. The Treatment of Chronic Intractable Asthma with Pollen Extracts. Ann. Int. Med. 7: 593 (Oct.) 1933.

25 Cripp L. H. and Hamsey J. W. Therapeutic Value of Iodized Oil in Bronchial Asthma. J. Allergy 9: 237 (Nov.) 1937.



spasm of the upper bronchial tree with but little edema of the mucosa and practically no secretion was noted in the bronchi. The day after the bronchoscopy she received 10 cc of blood intramuscularly from an asthmatic patient who had been symptom-free for more than one year. The attack promptly subsided within half an hour. However, it should be stated that the date of this treatment coincided with the termination of the grass pollen season.

Among these seventy-six cases, death occurred in only one case.

Mrs. R. S. had for eighteen years had severe allergic asthma which had been complicated by manifestations of cardiac insufficiency. During an aggravation of the attack evidence of cardiac failure and pulmonary edema developed which terminated in fatal pneumonia.

It may be of statistical interest that only three others out of the 1,431 patients with allergic asthma died while under my care and that drugs seemed to be responsible in every single instance. One patient (J. H.) died during a moderately severe attack a few seconds after he had administered to himself 1 cc of epinephrine. There was blood at the site of injection and the typical blanching effect on the skin was not present, indicating that a vein may have been punctured and the drug thus had been injected intravenously. Another chronic asthmatic patient (J. T.) was said to have taken a "patent medicine" containing coal tar products for a headache at a time when he had been entirely free from asthma. Within a few minutes severe shock, dyspnea, cyanosis and convulsions developed, followed immediately by death. The third patient (Mrs. L. S.) died in some unexplained manner, after having taken a hypnotic during the course of a light attack of asthma. She appeared to be in a natural sleep, which gradually turned into a comatose state from which she could not be aroused. Death occurred two hours after she took the hypnotic. No wheezing had been noticeable before her death.

#### SUMMARY

1. The "asthmatic crisis" represents either a sudden aggravation or the climax of a progressive state of asthma. It constitutes a grave emergency.

2. The following therapeutic principles are suggested:

(a) Extreme caution should be used in the introduction into the system of antigens that might aggravate the condition, particularly drugs.

(b) Such measures of elimination as are usually emphasized in the treatment of allergic disease should be carried out. Hospitalization is of great assistance in accomplishing this. In addition, withdrawal of epinephrine and similar drugs that have been given before is advisable.

(c) Symptomatic relief can be accomplished by measures which secure rest and relaxation, allow cough control, existing cyanosis and aid in the maintenance of the patient's nutritional state.

(d) Specific hypsensitization with antigenic extracts that are considered the chief source of the attack should be employed as the method of choice.

3. Among seventy-six cases thus treated, one death occurred and eight patients were not benefited until bronchoscopy was resorted to. In seven of the eight cases the removal of thick tenacious mucus from the bronchial tree and an attempt at mechanical dilation of the bronchi resulted in prompt cessation of the emergency.

602 Professional Building

## THE LOP EAR

DONALD W. MACCOLLUM, M.D.

Instructor in Surgery, Harvard University Medical School, Associate  
Visiting Surgeon, the Children's Hospital

BOSTON

The majority of articles on the malformations of the external ear have been published in European journals and comparatively few are in the English language. Most of these papers are limited to a report of an isolated case. Still more rare is the paper that deals with the ear in which all of the components are present but which are shaped so that the ear protrudes abnormally from the head. This deformity is commonly designated as a "lop ear" or "bat ear." The present article calls attention to this abnormality with especial emphasis on the explanation of the embryologic development and the surgical correction.

#### FORMATION

The external ear arises from six distinct tubercles and a ridge of tissue, all of which are grouped around the dorsal limit of the first branchial groove, which in turn gives rise to the external auditory canal. Three of these primordia are derived from the first branchial arch and four from the second. Fusion of these tubercles takes place in a regular sequence, so that in the completed ear the antitragus and the anterior curve of the helix are derived from the three tubercles of the first arch, and the remainder of the helix, antihelix, tragus and lobule from the three tubercles and the ridge of the second arch. Any one or more of the several primordia may fail to develop, resulting in a microtia with or without an atresia of the external auditory canal. Occasionally the elements of the ear may be completely formed but give the appearance of having been crumpled or crushed against the head. The latter deformities may be due either to faulty fusion of the tubercles or to some abnormal intra-uterine pressure.

During the third month of fetal life the ridge which is to form the helix grows more rapidly than any other portion of the ear, so that it projects forward and covers the three primordia of the second arch. Normally as the other components develop, the helix is gradually pushed upward and backward to form the outermost border of the ear. However, if there is a delay in development during this third month of fetal life the helix will remain in this forward position and continue its growth in a direction that is at a right angle rather than at a tangent to the head. The curved ridge of the antihelix does not develop so that the scapha may be regarded either as absent or as continuous with the curvature of the concha. This ear becomes the true lop ear.

As the infant develops, the conchal portion of the cartilage which at birth had an abnormal forward curvature continues to grow so that this forward curvature becomes even more pronounced. For this reason lop ears that are not noticeably abnormal at birth become more and more prominent during infancy and early childhood. This deformity is therefore often considered to be an acquired one rather than one of congenital origin and the blame is wrongly placed on the nurse or the mother who has allowed the ears to protrude beneath a cap or bonnet or has allowed the baby to sleep with the ears folded forward.

From the Surgical Service of the Children's Hospital and the Department of Surgery, Harvard University Medical School.

## INCIDENCE

In comparison with many congenital anomalies, malformations of the external ear occur infrequently and are seldom seen repeatedly in the same family tree. During the twenty year period from Jan 1, 1918, to Jan 1, 1938, 108,744 children were admitted to the



Fig 1 (case 1)—Both ears are symmetrically prominent

Children's Hospital. Of this number only forty-six patients were treated for malformations of the ear and of these forty-six, only twenty-one had lop ears. In interpreting these figures it must be remembered that these anomalies exist much more commonly but are of such a nature that their correction is not considered important. It is interesting to note that all but two patients with lop ears were children of Irish extraction. This series is too small to justify any definite conclusion with regard to nationalities but it is a suggestive point since the racial distribution of patients treated at the Children's Hospital is far different from the percentage that occurs in this series.

In the group of twenty-one patients with lop ears there were sixteen boys and five girls. The deformity in the female becomes of less importance because it



Fig 2 (case 1)—Result six weeks after operation

may usually be hidden by a proper coiffure. In the male, however, it is liable to become a source of great embarrassment at an age when it may result in a permanent change in character. For this reason some attempt at correction should be made before the boy begins to associate with children of his age, who may be tactlessly cruel about the size and shape of his ears.

## TREATMENT

On the faulty hypothesis that this is an acquired condition, attempts to correct the deformity have frequently involved fixation of the ear in its normal position by means of adhesive strapping, elastic cap, ear muffs or other mechanical appliances. In the series of twenty-one cases every patient seeking correction of a lop ear at the Children's Hospital gave a history of long continued trials with these mechanical restrainers. A failure was reported in every case in which these palliative measures were used.

It must again be emphasized that the causation of the lop ear is a congenital overgrowth of the conchal cartilage and a lack of the formation of the antihelix and scapha. It therefore follows that, in order to effect a restoration of the ear to its normal contour, the excessive cartilage must be reduced in size and reshaped so that the ear will lie back in its normal alignment with the head. The mechanical appliances may be of some aid in holding the ear back after its surgical correction, but they cannot be expected to bend the excess cartilage of the true lop ear permanently.



Fig 3 (case 2)—Marked protuberance of both ears

Many operative procedures have been outlined for the correction of the lop ear but in my opinion there are only three methods that meet the fundamental requisites for a satisfactory repair. These requisites are that 1 The angle formed between the ear and the mastoid region must be reduced to at least 30 degrees. 2 The convolutions of the cartilages must be shaped to form an antihelix and a scapha, both of which are absent in the lop ear. 3 The skin incision must be hidden behind the ear so that it is not readily noticeable.

## FIRST METHOD

In correcting a lop ear the surgeon must plan to make the curvature of the antihelix less acute and the scapha slightly wider than in the normal ear. For the purposes of orientation the position of the planned antihelix is first marked off on the anterior surface with sterile Bonney's blue paint.<sup>1</sup> Along this line, punctures are made through the entire ear with a needle carrying the paint so that the curvature of the new antihelix will be projected as a line of dots in the skin on the back of the auricle. These dots will then outline one side of an ellipse. The remainder of the ellipse is marked off so that one half of it lies on the posterior surface of the auricle and the other half over the mastoid region. Procaine hydrochloride and epinephrine are injected into the skin over the iron a

<sup>1</sup> Components of Bonney's blue paint are brilliant green 10, crystal violet 87 Gm. 90 per cent alcohol 10 ounces, distilled water 1 ounce.

back of the ear so as to facilitate the dissection of the cartilage and to prevent excessive bleeding. The ellipse of skin, previously outlined on the posterior surface is now removed. An incision is next made through the cartilage along the line demarcated by the ink dots previously produced by the perforating needle. Great care should be taken to avoid buttonholing the skin on the anterior surface. Through this incision the cartilage is then freed carefully from the skin on the anterior surface so that the edge of the outer portion of cartilage can be inserted under the edge of the proximal portion. The cut edge of the inner or proximal cartilage will then form the ridge of the new antihelix. As the two parts of the cartilage slide over each other it is found that the ear will begin to assume a normal position. In most cases the outer or distal cartilaginous plate, which is now to form the structural foundation of the scapha will be too wide. For this reason a sickle or crescent shaped portion of this outer cartilage must be removed before the cartilaginous convolutions simulate a normal appearance. It follows that the ear which protrudes markedly will require the excision of a wider strip of cartilage than one that is less prominent. When a satisfactory correction has been obtained, the two layers of cartilage are sutured to each other by interrupted sutures of

dressing none of these difficulties should arise. A dressing with identical pressure is then reapplied until the eighth or ninth day. After this time the patient is allowed to wear a pair of soft cotton pads held in place with elastic ear muffs. During the day when he is under close surveillance these ear muffs may be removed, but during the night or when at play they should be worn to protect the ear against sudden trauma.



Fig 4 (case 2)—Result one month after surgical correction. This patient also has a facial asymmetry not related to the deformity of the ears.

0000 chromic catgut. To insure their anchorage to the head, both are sutured as a layer to the postauricular fascia of the scalp. This brings the skin edges together so that they may be closed with a continuous subcuticular stitch of 0000 plain catgut.

The suture line is then painted with varnish<sup>2</sup> and a meshed tape applied. Pressure now must be applied to keep blood from collecting between the undermined skin and the underlying cartilage. To insure this each concavity on the anterior surface is packed with fine gauze that has been cut to the desired shape. These packs are held in place with an elastic net (Elastonette) over which are placed a knit skull cap, elastic adhesive (Elastoplast) and an elastic crape bandage (Vic or Ace). It is important that these bandages exert enough pressure to control all the oozing but not enough to endanger the viability of either the skin or the cartilage. The first dressing is removed on the third or fourth day for inspection of the color of the ear. If the procedure has been done with gentleness and if the skin has not been undermined too extensively, the ear should be of normal color. If there are any areas which are dusky or blue the ear must be examined for hematoma. If a hematoma has formed it must be expressed completely to avoid a slough of the skin overlying it. If the hematoma is incompletely expressed the result on healing will be a thickened, slightly cauliflower ear. If the ear remains blue even after the hematoma has been removed hot packs are advisable to stimulate the return of the normal circulation. With proper technique and a proper



Fig 5 (case 3)—Ears protruding beyond a right angle from the head.

At the end of a month the use of these pads may be discontinued and the result at that time may be considered as permanent.

This method of repair is applicable for all types of lop ears, but it is particularly indicated for those in which the conchal cartilage is more prominent than the rest of the ear. It has the obvious disadvantage of obliterating to a certain degree the normal postauricular sulcus. If the ear curls forward beyond a right angle from the head, this method of repair will necessarily result in a very shallow postauricular sulcus. For the latter case the second method is better chosen.

#### THE SECOND METHOD

The same preparation of the ear and marking of the curve of the new antihelix is to be followed as that outlined for the first method. The ear is similarly injected with procaine and epinephrine to aid in the dissection of the cartilage. In this repair a posterior incision is made through the skin and through



Fig 6 (case 3)—Result four weeks after operation.

the cartilage in the line marked by the ink of the perforating needle. An ellipse of skin is not removed in this repair. After the cartilage has been freed from the anterior skin the two cut cartilaginous edges are turned to point anteriorly. This places the distal and proximal portions of the cartilage back to back. They are held in this position with horizontal mattress stitches of white Deknatel silk. The use of black silk is to be avoided because later it may show through the thin skin on the anterior

<sup>2</sup> Component of the varnish are colophony 3 drachms, corn oil 4 drachms, benzoin 4 drachms, rosin 1 drachm, turpentine 1 drachm, and turpentine 1 drachm.

surface The use of catgut is also undesirable because of the possibility of a reaction to the suture in the region of the knot with a resultant loss of the tension on the suture When the cartilages are sewn in this buckled position the conchal portion of the ear may be too prominent, so that it may project too far beyond the helix when the patient is viewed from the front If this occurs, narrow strips may be shaved from the rim of the proximal portion of the cartilage until the desired height is produced When the ear has been buckled back into the corrected position it will be found that the edges of the skin are approximated and are easily closed with a continuous subcuticular stitch of 0000 plain catgut A dressing similar to that described in the first method is then applied

This repair is applicable for the ear with a prominent pinna but without marked enlargement of the conchal cartilage It is slightly more difficult to match the position of the two ears with this method because the cartilage of one ear may buckle more readily than that of the other and thus produce an asymmetric result This method has one real advantage of retaining the postaural sulcus Occasionally this sulcus becomes too deep and is therefore unsightly This happens in the ear that is abnormally large in proportion to the other features and is best repaired by the third method

#### THIRD METHOD

The third method combines features of both methods 1 and 2 An ellipse of skin is removed as in method 1 but it is about half the width of that which would ordinarily be advocated for method 1 The cartilage is also excised as in method 1 but the shape of the piece removed is more pear shaped than crescentic, the widest portion being at the base of the conchal portion of the ear The edges of the remaining cartilage are then approximated back to back as in method 2 After this line of sutures is placed, the proximal portion of the cartilage is sewn to the galea of the scalp in the area made by the removal of the ellipse of skin Then the skin is closed in the fashion used in both previously described methods

The advantages of method 3 are that 1 The postaural sulcus is retained but is not as deep as in the second method, owing to the removal of the narrow ellipse of skin 2 The antihelix becomes smooth and cordlike in contradistinction to the sharper ridge formed in methods 1 and 2 This is due to the fibrous tissue, which fills in under the excess skin on the anterior surface which previously overlay the portion of the cartilage that was removed 3 With this repair the ear is in a potentially more secure position than it was in method 2 because of the added line of sutures holding the proximal cartilage to the head 4 The size of the entire ear is reduced

#### CONCLUSIONS

1 The malformations known as "lop or bat ears" are congenital in origin

2 True lop ears warrant plastic repair in childhood before the patient suffers embarrassment from a deformity which is so readily correctable

3 Three methods of plastic correction of this anomaly have been developed The principles are based on experiences with twenty-one patients who have been treated for this deformity in the Children's Hospital of Boston

300 Longwood Avenue

**Medical Schools Guard Truth**—Every medical school is a guardian for the future of truth What can be done to help those who come after us to acquire that balanced judgment by which alone such errors can be avoided? Is the present system of medical education entirely free from blame in the matter? I trow not—Langdon-Brown Walter The Dead Hand in Medical Science, *Lancet* 1 280 (Jan 29) 1938

## OBESITY IN THE ADOLESCENT CURED WITHOUT INJECTIONS

HORACE GRAY, M.D.

SAN FRANCISCO

Obesity during the pubertal period usually raises the diagnostic question of adiposogenital dystrophy, based presumably on deficiency or at least disorder of gonadal or pituitary or thyroid or of a combination Definite diagnosis is often difficult in boys, and only boys are considered in this paper, the main reason is that the fat deposit above the symphysis pubis masks the size of the external genitalia

#### INCIDENCE

The frequency of occurrence in boys of high school age was estimated by Shapiro<sup>1</sup> in 1929 as 26 per cent and by Taylor and Schaefer<sup>2</sup> in 1937 as 23 per cent

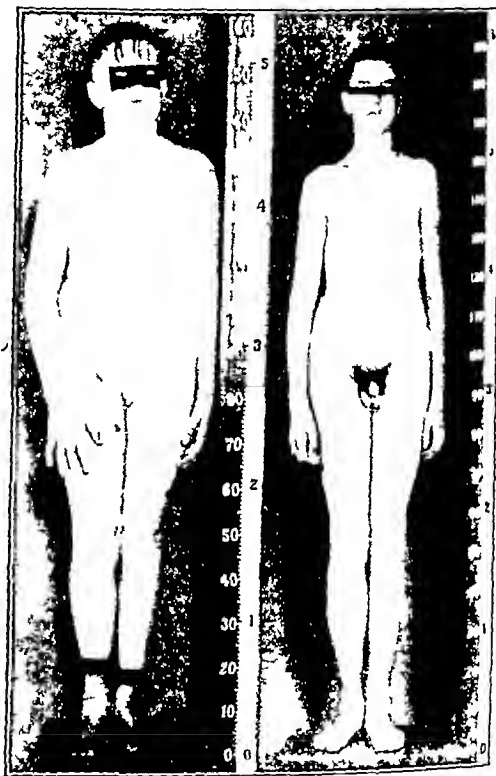


Fig. 1—Patient 1 before and after treatment In the illustrations the appearance before treatment is given at the left, the appearance after treatment at the right

Economic advantages may increase the frequency, for Gray and Ayres<sup>3</sup> in 1931, working in private school, found higher rates, which may be reviewed In order to be extremely conservative, they first discarded only those who appeared definitely outside the limits of normal, judged not merely by fat but by the medical appearance or history or both, of these there were eighteen

From the Medical and Pediatric Clinics Stanford University School of Medicine

<sup>1</sup> Shapiro, Shepard Endocrine Disturbances Among High School Boys I Adiposodystrophia Genitalis Endocrinology 13 144 (May 1 April) 1929

<sup>2</sup> Taylor, N. M. and Schaefer, R. I. Endocrine Disturbances Among Young Delinquents Endocrinology 21 191 (March) 1937

<sup>3</sup> Gray, Horace and Ayres, J. G. Growth in Private Schools Children with Abnormalities Based on 3110 Years of Age 1 and 1473 on Girls from the Ages of One to Nineteen Years I Research Fund Monograph University of Chicago Press December 1937 pp 3 7 219 220

Those who were not diagnosed frankly pathologic did, however, show so many overweights that they were classified by descriptive diagnoses and more accurately by calculating the percentage over or under weight, abbreviated as  $W \pm \%$ . The normal weight

TABLE 1—Descriptive Diagnoses Distribution and Corresponding Degree of Overweight  $W \pm \%$

Descriptive Diagnoses		Percentage of 400 Boys and Girls	Mean $W \pm \%$ 300 Boys
1	2	3	4
T+++	Excessively thin	1	-11
T++	Presumably too thin	1	-11
T+	Rather thin and perhaps below par	3	-6
NT	Rather thin but definitely well and active naturally thin	2	-9
N	Normal	54	+1
HK	Husky and sturdy but not fat	3	+15
F+	Rather plump	3	+10
F++	Borderline obesity	2	+24
F+++	Strikingly fat	1	+31
		100	

standard used was the weight for height table for private school boys by Gray and Fraley<sup>4</sup>. Each child's actual weight minus the predicted weight found in the table



Fig 2—Side view of patient before and after treatment.

was divided by the predicted weight and multiplied by 100, i.e.  $100 \frac{W-W_P}{W_P} = W \pm \%$ , thus giving in one figure the amount the child was over or under weight. After tabulation of the distribution of children among these descriptive diagnoses, the proportion in the various classes was so nearly the same for each sex that the two sexes were pooled giving the percentage

<sup>4</sup> Gray, Horace and Fraley, Frederick. Growth Standard, Height, Girth and Weight for Private School Boys. Am J Dis Child 32: 54 (Oct) 1926.

distribution in table 1, column 3. Then, taking the boys only, the percentages were averaged for each descriptive diagnosis, showing for the fatter classes striking degrees of overweight, table 1, column 4, toward the foot of the column.

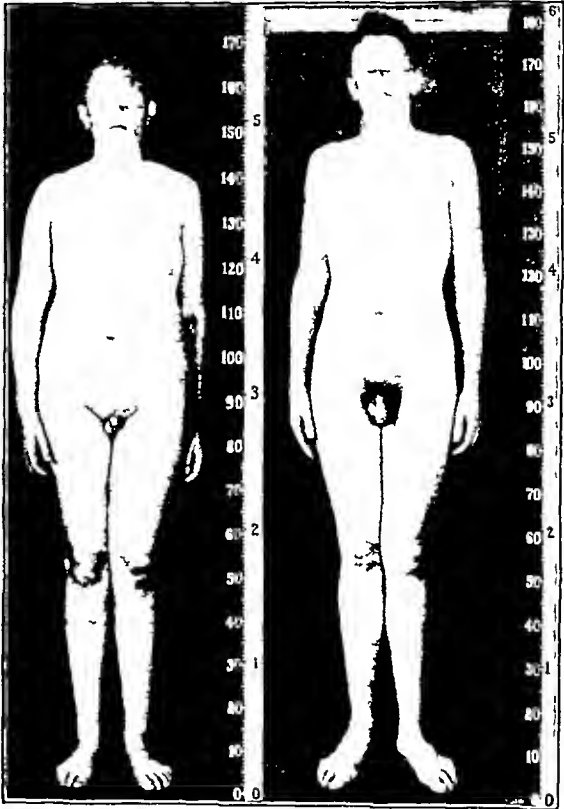


Fig 3—Patient 2 before and after treatment.

The overweights were more striking when arranged by frequency in table 2, for all ages 1-19 years see column 2, or more concisely column 3, and similarly

TABLE 2—Frequency Distribution of Degree Overweight  $W \pm \%$

$W \pm \%$	Percentage of 400 Boys of 1-19 years		Percentage of 100 Boys of 12-19 years	
	1	2	3	4
+70 to +74		0.03		0.00
+65 to +69		0.00		0.00
+60 to +64		0.00		0.10
+55 to +59		0.00		0.00
+50 to +54		0.16		0.10
+45 to +49		0.00		0.40
+40 to +44		0.00		0.00
+35 to +39		0.00		0.00
+30 to +34		1.00		1.10
		2.67		0.00
+25 to +29		1.00		1.00
+20 to +24		2.10		4.40
		7.0		7.00
+15 to +19		0.00		0.00
+10 to +14		0.10		0.00
+5 to +9		0.14		0.10
-10 to -14		0.11		0.10
-15 to -19		0.10		0.10
-20 to -24		0.04		0.00
-25 to -29		0.10		0.00
-30 to -34		0.00		0.00
		10.00		10.00

for the adolescent epoch from ages 12 to 19 years see column 4 condensed in column 5. More briefly still it is notable, in both series and whatever the criterion



chosen, that marked obesity is more frequent than reported by the authors cited, this is clear from table 3

ENDOCRINE TREATMENT

Recent literature on reduction treatment in fat boys with more or less definite secondary sex backwardness, by injections of pituitary or testicular extract, will undoubtedly lead to frequent administration of these substances. In some cases this is a promising and

TABLE 3—Frequency of Overweights  
(Condensed from Table 2)

Criterion	Percentage of All Boys 1 to 19 years	Percentage of Boys 12 to 19 years
30% or more overweight	27	30
25% or more overweight	42	44
20% or more overweight	70	73

desirable procedure. In all cases, however, the physician may be invited to consider: 1. That such extracts may, after wider use, prove to have some deleterious by-effects, so that their use should not be indiscriminate.

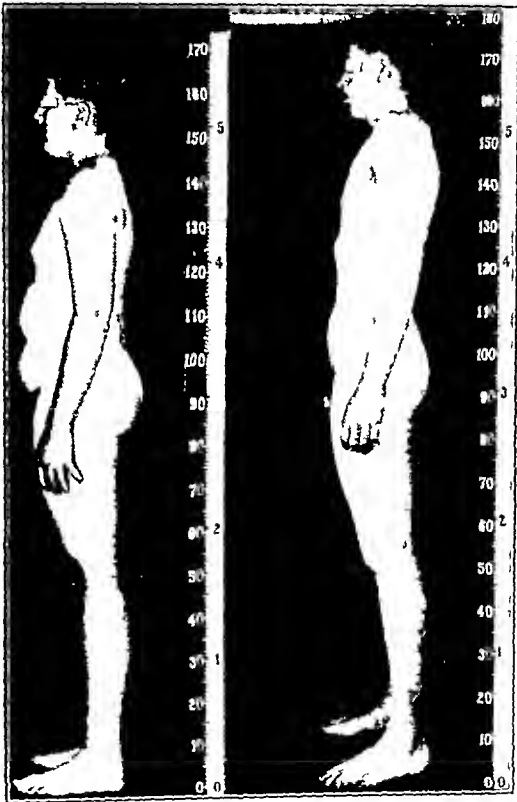


Fig. 4—Side view of patient 2 before and after treatment

2. That successful reductions following endocrine injections may be due less to the medication than to Mother Nature. We have long felt that such spontaneous reductions of weight during adolescence are commoner than is appreciated, we know no figures as to the frequency of such encouraging outcomes relative to the frequency of persisting disorder but we can now report two examples, fortified by "before and after" photographs and rather thorough studies of build. The anthropologic items measured were over a dozen, together with a somewhat larger number of indexes derived from the absolute measurements. Description of the items, landmarks and other aspects of technique have been reported elsewhere.<sup>4</sup> The interpretation of such a set of measurements after plotting on a profile

chart has been used in the past by others, was further described and illustrated by eighteen examples in the book referred to, and was similarly applied to our patients. In this paper, however, these extensive measurements and charts will not be reproduced, but only a brief selection of the more pertinent.

In order to clarify the significance of the figures about to be reported, the percentile has been calculated for many of the items for the individual with respect to a hundred normal persons of the same age, for example, let us take the stature of the first patient, 1,643 mm at the age of 12, this is 139 mm taller than the average for private school boys aged 12, dividing this by 67.4 mm, the standard deviation, we find his deviation from the average to be 2.06 SD or 2.06 times the standard deviation, and looking up this value in the probability table, we see that ninety-eight out of 100 boys of his age would be smaller than he, therefore we say he is in the 98 percentile rank. The two case histories follow.

DIET TREATMENT

Treatment was begun by our usual obesity diet of carbohydrate 80, protein 60, fat 40 Gm, namely, a bread and flour free regimen but including milk and vitamins. The food was not weighed by either of the patients. As soon as they had shown cooperation in facing the restrictions, the diet was increased, mainly to give a protein intake of about 1.5 Gm per kilogram of body weight normal for the patient's age and height.

CASE 1, History.—J. C. M. was referred by Dr. Donald Marshall. The family history shows that the parents and the grandparents were all born in the United States, of northwestern European ancestry, and were correspondingly large.

The patient's birth weight was 3,860 Gm (8½ pounds), i. e., a big baby. Examination showed an orchidopexy scar, urine and blood normal, blood pressure 115 systolic, 75 diastolic, and basal metabolic rate —16 per cent.

TABLE 4—Family History of Patient 1

Father	1 900 mm (6 ft 3 in.)	207 pounds
Mother	1 625 mm (5 ft 4 in.)	130 pounds
Father's father	1 880 mm (6 ft 2 in.)	142 pounds
Father's mother	1 763 mm (5 ft 9 in.)	166 pounds
Mother's father	1 820 mm (6 ft 0 in.)	192 pounds
Mother's mother	1 670 mm (5 ft 2 in.)	151 pounds
Sister M. at 24 years	1 714 mm = 98 rank	60.8 kg = 137 rank
Sister D. at 23 years	1 613 mm = 73 rank	51.6 kg = 115 rank
Sister J. at 20 years	1 598 mm = 84 rank	51.7 kg = 117 rank

TABLE 5—Measurements in Case 1 Before and After Treatment

	Before	After
Age	Age 12.3 years	Age 16.2 years
Date	May 27, 1932	April 2, 1934
Weight	56.8 kg (125 lbs) = 99 rank	71.2 kg (157 lbs) = 95 rank
Stature	1 643 mm (64.7 in.) = 98 rank	1 807 mm (71.2 in.) = 97 rank
Bicristal	280 mm = 99 rank	309 mm = 97 rank
Sitting/S	105 cm = 99 rank	104 cm = 97 rank
W/S in kg/mm	34.6% = 98 rank	39.4% = 97 rank

Build.—The illustrations tell the story. Both boys were tall, long legged (i. e., rather eunuchoid), and fat both with regard to age and with regard also to height.

The improvement in slenderization is most clearly shown by the weight/stature index as converted in terms of percentile rank, whereas "before" the patient was fatter for his height than 98 per cent of boys of his age, "after" the period of treatment he was fatter than only 76 per cent, that is, 24 per cent of boys of his age would be as fat as he.

CASE 2.—History.—W. B., of old American stock, 3,118 Gm (6 pounds 14 ounces) at birth, i. e., he was a big baby. His father, mother and one sister were normal in build.

Physical examination was negative. Urine and blood were normal. The basal metabolic rate was 13 per cent. The dextrose tolerance test gave the following readings: fasting 91 mg, one hour 177 mg, two hours 121 mg, 4 hours 120 mg, and

TABLE 6—Measurements in Case 2 Before and After Treatment

	Before		After
Age	14 3 years		19 3 years
Date	May 20 1932		May 8 1937
Weight	78 1 Kg (172 lbs) = 99 rank		79 1 Kg (174 lbs) = 94
Stature	1 720 mm (67 8 in) = 89 rank		1 836 mm (73 1 in) = 95
Bierstäl	294 mm		299 mm
Si/S	50 6% = 65 rank		51 3% = 87
W/S	40 4% = 99 rank		42 6% = 91

no glycosuria. Bone age was normal. The sella was normal. The diet consisted of carbohydrate 125 Gm, protein 70 Gm, fat 70 Gm.

Build—He was like the other patient: tall, eunuchoid and fat.

## SUMMARY

Two boys with obesity, genital hypoplasia, marked tallness and eunuchoid legs were observed for four years (from 12 to 16) and for five years (age 14 to 19), with diet but no endocrine injections. During observation their builds became sufficiently normal to eliminate any question of the need of added hormone. Measurements are given, but the improvements are more strikingly and simply manifest by photography.

THE ACTION OF HYPOGLYCEMIA ON  
THE CENTRAL NERVOUS SYSTEMAND THE PROBLEM OF SCHIZOPHRENIA FROM  
THE PHYSIOLOGIC POINT OF VIEWERNST GELLHORN, M.D., PH.D.  
CHICAGO

It is known that the anoxic and the hypoglycemic syndrome are similar (Kleitman and Magnus,<sup>1</sup> Olmsted and his collaborators<sup>2</sup>), but only recent work has shown that the two conditions are related in the essential physiologic mechanism involved. Holmes<sup>3</sup> and Wortis<sup>4</sup> have shown that the oxidation rate of brain tissue decreases with decreasing sugar concentration in the suspension fluid. Myerson and his collaborators<sup>5</sup> found that the oxygen and sugar uptake by the brain are reduced in hypoglycemia.

In order to substantiate the anoxia theory of insulin convulsions and to extend it to the preconvulsive state, a series of experiments was carried out which may be briefly reported.

1. Gellhorn and Yesnick<sup>6</sup> showed in narcotized dogs that the blood pressure response accompanying

a rise in intracranial pressure up to the blood pressure level is greatly increased in anoxia. An almost identical response could be obtained by substituting hypoglycemia for the inhalation of low oxygen.

2. Glickman and Gellhorn<sup>7</sup> carried out numerous experiments on rats which were temporarily subjected to a relatively mild degree of anoxia (low pressure chamber). It was found that after a standard dose of insulin the insulin convulsions occur much earlier and are more severe than in control experiments carried out at normal barometric pressure.

3. Ingraham, Moldavsky and Gellhorn<sup>8</sup> found in narcotized dogs that the blood pressure rise resulting from the inhalation of low oxygen is greatly increased during hypoglycemia. The inhalation of 62 per cent oxygen for from two to three minutes, which at a blood sugar level of about 100 mg per hundred cubic centimeters either does not alter the blood pressure or produces only a slight rise of a few millimeters of mercury, may at a blood sugar level of 40 mg per hundred cubic centimeters produce a rise of 80 or 100 mm of mercury. At the same time Cheyne-Stokes breathing may be observed. The reaction is reversible on the injection of dextrose. Fructose is less effective and galactose is unsuited to restore the original blood pressure reaction to low oxygen. The reaction is due to the lowering of the blood sugar by insulin and not to other changes in the blood.

From these experiments and the literature cited the following conclusions may be drawn:

1. Hypoglycemia acts on the central nervous system in a way similar to that of oxygen deficiency. In both instances the rate of oxidation is reduced.

2. The sensitivity of the central nervous system to oxygen deficiency is greatly increased in hypoglycemia.

3. The combination of hypoglycemia plus oxygen deficiency induced by insulin and the inhalation of an oxygen deficient gas mixture produces a more effective stimulation of the sympathetic nervous system measured by the blood pressure response than even the inhalation of pure nitroge.

It seems reasonable to apply the physiologic principles elucidated in the foregoing experiments to the clinical problem presented by schizophrenic patients. It is to be expected that insulin improves schizophrenic patients by the same mechanisms which are called into play in the animal experiments that have been described, i.e., (1) by reduction in the oxidation rate in the central nervous system and (2) by the stimulation of the sympathetic centers resulting from the diminution of the oxidative metabolism.

Space does not permit of a detailed discussion of the reasons which induced various authors to use different remedies for the treatment of schizophrenia. It may suffice to state that insulin,<sup>9</sup> metrazol,<sup>10</sup> the prolonged narcosis treatment,<sup>11</sup> the injection of sodium cyanide,

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From the Departments of Physiology and Psychiatry, University of Illinois College of Medicine.

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the inhalation of from 30 to 40 per cent carbon dioxide<sup>12</sup> and, finally, the administration of cocaine have been introduced into psychiatry for various clinical and psychologic reasons. In no case was an attempt made to understand the physiologic mechanism involved. A study of the literature and my own experiments on metrazol indicate, however, that the various drugs mentioned have a very similar action on the central nervous system. Metrazol is a highly effective stimulant of the sympathetic system even under conditions in which the convulsions are suppressed (curare<sup>13</sup>). The narcosis treatment involves a reduction in the oxidation rate of the brain<sup>14</sup> and is not infrequently accompanied by signs of sympathetic discharge at the end of the treatment<sup>15</sup>. Sodium cyanide and the inhalation of 30 or 40 per cent of carbon dioxide greatly interfere with the oxidative metabolism of the brain and stimulate the sympathetic system. And, finally, cocaine, which has been used occasionally with some success, is a typical stimulant of the sympathetic centers. From this it may be concluded that various treatments used in schizophrenia are effective because they produce, by a profound alteration in the metabolism of the central nervous system, a sufficiently strong and lasting excitation of the sympathetic nervous system and thereby bring about a far reaching reorganization of all mental processes.

If the interpretation given is correct, it is to be expected that schizophrenia is characterized by a deficiency of the autonomic nervous system and particularly of its sympathetic division. Experiments of Pfister<sup>16</sup> on schizophrenic patients, and direct clinical observations (Singer<sup>17</sup>) seem to confirm this conclusion. I therefore come to the conclusion that schizophrenia involves a hypofunction of the sympathetic system and that improvement or cure may be brought about by a sufficient stimulation of the sympathetic centers. My own experiments, with a combination of hypoglycemia and inhalation of an oxygen deficient gas mixture, have shown that a very marked stimulation of the sympathetic nervous system may be produced in this way. The reduction in oxidative metabolism achieved is far greater in the brain than in other organs, since the brain oxidizes carbohydrates almost exclusively, whereas other organs can oxidize noncarbohydrate material when the blood sugar concentration is low<sup>18</sup>.

It will be the task of clinical experimentation to determine the most favorable conditions for the practical application of this combination. It may be stated, however, that the effect of this or any other procedure, according to this theory, depends on the degree and duration of the excitation of the sympathetic centers. Whether the alteration in oxidative metabolism is of specific importance remains to be seen. At any rate, if the interpretation given is correct, the therapy of

schizophrenia will be guided in the future not by empiric observations but by a definite physiologic theory and by experiments designed to find the most suitable and effective procedure for the excitation of the sympathetic centers. It seems that physiologic research has opened up a new and promising road to combat not only schizophrenia but also other psychoses, such as the manic-depressive psychoses, in which vegetative disturbances are very prominent. Work along these lines is in progress.

## A TRICHINOSIS EPIDEMIC OF SIXTY-FOUR CASES

THOMAS L. FERENBAUGH, MD

Colonel Medical Corps, United States Army Surgeon Station Hospital  
FORT ETHAN ALLEN, VT

LEO SEGAL, MD

1st Lieutenant Medical Reserve Corps United States Army  
BURLINGTON, VT

AND

H. A. SCHULZE, MD

1st Lieutenant Medical Reserve Corps United States Army  
Surgeon Camp Charles M. Smith  
WATERBURY, VT

An epidemic of trichinosis occurred in the 1136th Company Civilian Conservation Corps at Camp Charles M. Smith, Waterbury, Vt., during October 1937. Forty-four patients were admitted to the Station Hospital, Fort Ethan Allen, Vt., for treatment, after a variable period of observation in the camp dispensary at Waterbury.

The first patient, enrollee A, was admitted to the camp dispensary on October 30, complaining of head ache, chills and general malaise, acute coryza, severe sore throat, swollen and painful eyes and muscular soreness. He was observed at the camp dispensary from October 30 until November 5, when he was transferred to the Station Hospital, with a diagnosis of moderately severe sinusitis, frontal, acute, suppurative and bilateral, the cause of which was undetermined.

On his admission to the Station Hospital his temperature was 103.2 F. There was edema of the upper eyelids and suborbital edema to such an extent that the patient's face looked swollen. The muscles of his extremities and back were painful to pressure, and he complained of a stiff, painful neck. He had slight sore throat and stated that he had had difficulty in swallowing fluids for the past three days. He said that his illness began about October 27. He gave a history of having had some epigastric discomfort, described as a feeling of constriction of the abdominal muscles of the epigastric area, which came with eating or drinking and lasted about five minutes. He had had frequent chills and sweats during his illness and had been unable to sleep. On the evening of the date of admission his temperature was 105 F. No change of diagnosis or tentative diagnosis was made on his admission.

On November 6 a blood count showed 27,770 white cells, and a differential count showed 1 per cent small mononuclears, 4 per cent large mononuclears, 61 per cent neutrophils and 34 per cent eosinophils. This great increase in the percentage of eosinophils, together with other symptoms, particularly muscular soreness, served to establish a diagnosis of trichinosis.

On November 9, procaine hydrochloride and the "being used, a small piece of the gastrocnemius muscle"

12 Loevenhart A. S., Lorenz W. F. and Waters, R. M. *Cerebral Stimulation* J. A. M. A. 92: 880 (March 16) 1929.

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15 Kulkow A. E., Weiland W. J. and Kakusini B. S. *Ueber die humoralen Veränderungen bei der Behandlung der Schizophrenie mit der Dauernarkose Gemisch nach Cloetta (Cloetta)* Schweiz. Arch. f. Neurol. u. Psychiat. (Ergänzungsheft) 39: 194 1937.

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17 Singer H. D. Personal communication to the author.

18 Himwich H. E. and Nahum L. H. *The Respiratory quotient of the Brain* Am. J. Physiol. 101: 446 (Aug.) 1932.

was removed, and numerous *trichinella spiralis* parasites were found by microscopic examination.

The surgeon at Camp Smith was informed by telephone that a diagnosis of trichinosis had been made in the case of enrollee A. At that time Dr. Schulze, the camp surgeon, stated that he had admitted within the past two days patients with the same symptoms, who probably also had trichinosis.

On November 8 Dr. Schulze evacuated to the Station Hospital seven patients, all of whom had a fever, swollen eyes and muscular soreness. Later, as other enrollees reported at sick call, those with trichinosis were selected for transfer by their fever, swollen eyes, muscular soreness and eosinophilia. Four patients were transferred on November 9, nine on November 10, eleven on November 11, five on November 13, one on November 15, four on November 16, one on November 18 and one on November 23.

An epidemiologic study was immediately started at Camp Smith. Many of the enrollees who were ill with trichinosis had returned from Oregon on October 13, and because of that fact it was not necessary to go beyond that date. Pork had been eaten as follows: October 13, sausage meat (breakfast), October 16, salt pork (supper), October 17, sausage meat (breakfast), October 19, bacon (breakfast), October 19, chops (supper), October 23, salt pork (supper), October 24, sausage links (breakfast), October 27, roast loin (dinner), October 30, salt pork (supper), and October 31, roast cured ham (dinner).

The sausage meat on October 13 and 17 was furnished by the Camp Charles M. Smith Experimental Farm. All the other meat was furnished by well known packing houses under contract. All of the meat had been inspected locally by a veterinary officer assigned



Fig. 1—Enrollee S showing marked ecchymosis of the corner and edema of the face and eyelids.

to that duty, and in addition meat products from the packing houses had been inspected by the Bureau of Animal Industry. Organization commanders and mess sergeants of the Civilian Conservation Corps are required to inspect carefully all meat products served, after cooking. They had done so in the case of the infested pork loin at dinner on October 27.

By questioning the enrollees and by examination of the company morning report and records, it was

determined that the only meal at which all enrollees had been present and in whom trichinosis subsequently developed was on October 27, when a roast loin of pork was served, which many of the enrollees said was undercooked in the center.

This date and the source of the epidemic were somewhat confused because of the case of enrollee A, who was admitted to the camp dispensary on October 30 and to the Station Hospital on November 5. On his admission to the camp dispensary on October 30 his chief complaint was symptoms of disease of the upper respiratory tract, moderately severe acute coryza and severe pharyngitis which required treatment.

On October 30, the day of admission, the medical officer attending him noted that he had some swelling of his upper eyelids, suborbital edema and inflammation of the conjunctiva. The respiratory symptoms continued to predominate, however, until November 3, by which time the coryza and pharyngitis had gradually improved but the elevation of temperature and particularly the pain around the eyes and the swelling of the eyelids remained. It can therefore be assumed that during the first part of his illness, which began on October 27, the patient was suffering from an acute infection of the respiratory tract and not from trichinosis, which supervened three days later. He had eaten the pork loin on October 27.

He had been detailed as a kitchen helper from October 1 and had assisted several times in preparing the pork and beans served. Each time he ate several cubes of the raw salt pork.

Enrollee A had clinically the most severe trichinosis in the epidemic. His biopsy showed an infestation of 800 larvae per gram of muscle. An incubation period of three days was assigned in his case.

It was important to determine the exact date on which the infested pork was eaten in order that a correct incubation period might be ascertained. The incubation period given in most textbooks is from one to forty days. No average is stated. It is fortunate that for this epidemic, caused by an infestation of intermediate extent, an average incubation period can be computed. For forty-four cases the average incubation period was twelve and four-tenths days, the minimum period was three days and the maximum period was twenty days.

Five quantitative biopsies were made, with the following results: enrollee A, weight 66.6 Kg, 800 larvae per gram, enrollee S, weight 61.4 Kg, 33 larvae per gram, enrollee I T, weight 80.9 Kg, 8 larvae per gram, enrollee T, weight 65.4 Kg, 22 larvae per gram, and enrollee C W, weight 64.5 Kg, 50 larvae per



Fig. 2—Enrollee C W showing the characteristic drowsy appearance associated with trichinosis: edema of the upper eyelids, suborbital edema and swelling of the face.

gram All biopsy specimens examined showed living larvae, with beginning encystment, December 10

The number of larvae contained in the muscles of enrollee A was estimated Assuming that half his body weight is muscle, he had a total of 26,640,000 living larvae in his muscles

Dr Maurice C Hall and Dr Benjamin J Collins,<sup>1</sup> both of the Division of Zoology, National Institute of Health, United States Public Health Service, stated that in autopsies performed at hospitals in Washington, D C, and Baltimore, on 300 persons who had died from causes other than trichinosis, forty-one diaphragms were seen to be infested with trichinellae We have been informed<sup>2</sup> that examination of 1,000 diaphragms from autopsies at hospitals with a greater geographic distribution has shown this percentage to be increased, and it may be assumed that a great many persons have had trichinosis, either with or without symptoms

With this information in mind and with the aid of a technical assistant, Dr John Bozicevich from the National Institute of Health, United States Public Health Service, we tested by the cutaneous and the precipitin method the forty-four patients with trichinosis in the Station Hospital and all CCC enrollees remaining on duty at the 1136th Company Both tests were positive for all of the forty-four patients in the Station Hospital At Camp Smith 136 enrollees still on duty in the 1136th Company were tested, twenty gave positive reactions to the cutaneous and the precipitin test Seven of these twenty gave a history of no symptoms whatever, five had been under observation or treatment at the camp dispensary for trichinosis with a negative result and were permitted to return to duty, the eight remaining enrollees had had indefinite symptoms of a cold, with swollen conjunctiva and painful eyeballs, or had experienced muscular weakness or malaise for two or more days At the time of examination, however, all were on duty and did not desire to go on sick report, since they felt entirely well

In this examination fifty control subjects in the 1184th Company at Fort Ethan Allen, Vt, were tested, furnishing a corresponding social group of the same age and living conditions as those of the 1136th Company at Waterbury Of these fifty, only two showed a mildly positive reaction to the cutaneous test and all gave a negative reaction to the precipitin test

It may be mentioned that Dr Bozicevich has spent considerable time in an attempt to refine the antigen used in the cutaneous test for trichinosis, and it now appears that his antigen is very satisfactory, a substantial contribution toward progress in the diagnosis of trichinosis

As shown by the cutaneous and the precipitin tests, twenty cases of so-called ambulatory trichinosis at Camp Smith may be added to the forty-four cases in the Station Hospital, making a total of sixty-four cases in the epidemic In other words, approximately one third of the patients in this epidemic were ambulatory

Owing to careful selection and careful attention to hospitalization, the incidence of hospital cases is probably higher in the Civilian Conservation Corps than it would be in an epidemic in the civilian population, in which it can be assumed that about 50 per cent would remain ambulatory or semiambulatory during their illness It

is reasonable to assume that in future epidemics involving an infestation of intermediate extent, this ratio would obtain

The forty-four patients now under treatment in the hospital have made satisfactory progress to date (Dec 20, 1937) Their symptoms and further progress will be reported in a later paper It has been possible to secure excellent clinical histories for the reason that on October 1, six students from the University of Vermont were assigned to the Station Hospital for fourth year clinical work The facilities of the University of Vermont have therefore been available for study of the cases, and the work is now being done At a later date it is proposed to publish papers on the symptomatology and on a study of the eosinophilia and the blood chemistry in trichinosis

From this report it is possible to draw certain conclusions regarding the prevention of trichinosis Official meat inspection does not eliminate the possibility of infection Education of the public to the danger of infection appears difficult Much cooking is done in the kitchen by hired help who know little or nothing about trichinosis An extensive campaign of education would serve to alarm people to the extent that they would refuse to eat pork at all This fact does not preclude, however, mention of the reason for thorough cooking of pork whenever and wherever advice is given on general public health methods or measures

The United States Public Health Service is of the opinion that garbage-fed hogs are responsible for the great prevalence of trichinae in pork at the present time, and Dr Maurice C Hall<sup>3</sup> stated that

Garbage-fed swine have trichinae between three and five times as frequently as do grain-fed swine and hence are specially important as sources of human trichinosis

Trichinosis in swine is apparently traceable to the eating of uncooked pork scraps in garbage, table scraps, swill and similar things much more often than it is traceable to the eating of rats by swine

The garbage feeding industry, as ordinarily carried on is dangerous to the health of man and livestock, esthetically objectionable, and often economically unsound

It appears therefore that a broad approach must be made to the problem of prevention of trichinosis to include inspection of pork products by official source education of the public to the dangers of eating raw or uncooked pork and elimination of the garbage feeding industry as now carried on

#### SUMMARY

In this epidemic there were forty-four patients with trichinosis who required hospital treatment and twenty ambulatory patients with little or no sick record

An average incubation period of twelve and four tenths days was definitely established for the epidemic

Five quantitative biopsies showed from 8 to 800 living larvae per gram of muscle

A preliminary survey of work now being done on autopsy material by the National Institute of Health United States Public Health Service, indicates that many individuals have become infested with trichina larvae

The improved antigen demonstrated a dependable accuracy in the cutaneous tests of 180 persons concerned in the epidemic and fifty control subjects

Preventive measures against trichinosis should include prevention of the disease in swine as well as in man

<sup>1</sup> Hall M C and Collins B J Pub Health Rep 52 468 490 (April 16) 1937

<sup>2</sup> Personal communication to the authors from the National Institute of Health United States Public Health Service.

<sup>3</sup> Hall M C Pub Health Rep 52 873 886 (July -) 1937



## Clinical Notes, Suggestions and New Instruments

### MINUTE PERFORATION OF AN ARTERIOSCLEROTIC PLAQUE WITH RESULTANT RETROPERITONEAL HEMATOMA

V EUGENE FRAZIER M.D. KANSAS CITY, MO.

Recently while I was working on the staff of the Army and Navy General Hospital, a most perplexing case was admitted to the medical service, under my observation. Because of the inability of any of the staff to make a satisfactory diagnosis and because of the unusual condition found at postmortem examination I feel that this case is worthy of being reported. In my investigation of the literature that was available to me nowhere was I able to find the report of a like condition.

#### REPORT OF CASE

**History**—W. C., a white man, aged 63, a resident of a small Arkansas town, was admitted to the hospital March 30, 1936. The diagnosis that was transmitted with the patient at the time of admission was (1) unresolved pneumonia of the left lower lobe, (2) acute constipation and (3) chronic arthritis. These diagnoses had presumably been made by the patient's family physician. The patient was a carpenter; however, since 1926 he had worked at only odd jobs. He had been in Florida from 1925 to 1929, otherwise he had spent all his life in a temperate climate. He was an occasional drinker and a constant pipe smoker. The past history included mumps during childhood, gonorrhea in 1902, progressive deafness for ten years and frequent attacks of malaria all during his life. The family history was irrelevant.

On admission the patient complained chiefly of pain in the back, anorexia and constipation. The soreness in the back was traced about ten years. The region involved was from the midsorsal to the coccyx. The severity was such that a physician was frequently summoned and a 'hypo' given for relief. Because of this circumstance the patient had forsaken his trade and resorted to such light tasks as he was able to find. The attacks would last for a month or more and were separated by an interval of several months. He stated that during this ten year period whenever he leaned over or attempted to lift anything he would always have a pain in the back and would feel too weak to complete the execution of the movement. The attacks had been of progressive severity, the one that occasioned this hospitalization having been the most severe of any to date, having appeared Feb. 15, 1936 and continued without remission until admission. During the present illness he had been constantly under the care of his family physician. There had been anorexia, vomiting was slight and constipation had been moderate. No other symptoms referable to the gastrointestinal tract were mentioned.

**Physical Examination**—The patient was admitted on a litter, conscious and rational. The nutritional state and general health appeared fair, obviously, however, he was seriously ill and in great discomfort. He answered questions very slowly but rationally. He was reluctant to make any unnecessary movements or to indulge in any conversation. The estimated weight was 145 pounds (66 Kg.), the height 67 inches (170 cm.). The pupils reacted to light and to accommodation. Hearing was defective, the teeth had all been removed, the tonsils were small and not noticeably infected. The skin and mucous membranes appeared normal for one of his age and habits. There was no adenopathy, the thyroid was not palpable. Sclerosis of the temporal and radial arteries appeared normal for his age or possibly somewhat increased. The blood pressure was 130 systolic, 90 diastolic. The cardiac rate and rhythm were considered normal, the apex impulse was not palpable, the heart was not enlarged to percussion and no murmurs were audible. The lungs were considered normal to inspection, palpation, percussion and auscultation. The abdomen was flat and there was slight rigidity. There was moderate tenderness over the entire upper half of the abdomen. In the center of the upper half of the abdomen there was a readily palpable mass which seemed hard and immobile, this

measured about 20 cm. in diameter. The pulsations of the aorta were palpable with ease over the mass. Examination of the genito-urinary tract was considered negative. The prostate was considered to be of normal size and consistency. The reflexes were all normal, as were also the bones, joints and muscles.

**Progress**—The patient was placed on a liquid diet and was given opiates in sufficient quantity to control the pain. After four days the condition had become worse, and intravenous infusion of saline and dextrose solution was given. At this time consultation was held with the surgical service and immediate exploratory laparotomy was decided on, the consensus being that an abdominal aortic aneurysm would be found. A midline incision was made, and immediately on palpating a retroperitoneal tumor the surgeon announced the finding of an aneurysm. After palpation, each of the assistants concurred. Because of the condition of the patient the abdomen was closed without any further investigation being attempted. During the operation a transfusion of 500 cc. of citrated whole blood was given, and also lobeline and coramin were given. The postoperative course was uneventful but very slow, until the eleventh day, when the patient fell out of bed, thus tearing the upper half of the incision open. The condition continued to be poor, and gradually the patient became weaker. At times he was irrational and vomited occasionally, sometimes blood was seen in the vomitus. Fluids were taken freely, but no other food was given.

On the ninth postoperative day the dressings were blood stained and needed frequent changing; no improvement in this regard occurred. The temperature did not exceed 101 F. at any time during the hospitalization. April 21, on the eighteenth postoperative day, the patient died.

**Laboratory Study**—The urine showed a trace of albumin and a few hyaline casts but otherwise it was normal. Examination of the feces was negative for blood and parasites. The blood count, March 30, showed red blood cells 4,820,000, hemoglobin 95 per cent, white blood cells 12,800, lymphocytes 23 per cent, monocytes 1 per cent and neutrophils 76 per cent. April 13, red blood cells 4,220,000, hemoglobin 85 per cent, white blood cells 11,900, lymphocytes 27 per cent, monocytes 1 per cent and neutrophils 71 per cent. April 17, white blood cells 10,600, lymphocytes 14 per cent, monocytes 2 per cent and neutrophils 84 per cent. The bleeding time was four minutes, the coagulation time four and one-half minutes. The Wassermann and Kahn reactions were negative on two occasions. Analysis of the gastric contents revealed total acidity 30/24/51, free acidity 0/10/20, occult blood positive/negative/negative/negative/positive.

**X-Ray Study**—Owing to the weakened condition of the patient the x-ray examination was reduced to the minimum. In the hilus of the left lung there was an oval shadow of increased density which suggested the differentiation between tumor, aneurysm, paraspinal abscess and diverticulum. There was a gross defect of the pyloric portion of the stomach and in this region peristalsis could not be demonstrated. The six hour examination showed partial retention and the filling defect was again seen. The duodenum filled spontaneously and appeared normal. Films made to show the thoracic and lumbar spine were negative. The colon was not visualized. No other lesions were demonstrated.

**Autopsy**—The coronary arteries appeared normal. The aortic arch and the upper part of the descending aorta appeared normal with the exception of small scattered atheromatous plaques. Just above the diaphragm these became more numerous and of larger size and as the celiac axis was reached the plaques became coalescent. Just below this point there was a minute rupture on the right side of the vessel which was accompanied by a large hemorrhagic infiltration that was apparently slowly formed and seemed to have followed along the right renal artery into the perirenal fat. This had produced a large retroperitoneal hematoma which had roughly the shape of a kidney and which measured 16 by 9 by 7 cm. The mass was ten e and seemed to involve the fat and connective tissue. The kidney was enclosed within the hematoma but no blood was found in the renal pelvis. Within the mass were old clots which were in layers but not organized. The renal

capsule was intact and had not been penetrated by the hemorrhage. The renal artery was intact and appeared normal. Below the perforation the aorta appeared intact, but many of the sclerotic plaques were ulcerated. There was no free fluid in the abdominal cavity. The autopsy revealed no other significant lesions. Histologically the changes were typical of arteriosclerosis.

509 Chambers Building

#### SUBCUTANEOUS RUPTURE OF THE JEJUNUM SUSTAINED IN A GAME OF FOOTBALL

W. H. ULRICH, M.D., J. E. WEBSTER, M.D., AND  
C. FREMONT VALE, M.D., DETROIT

Catastrophic injuries incurred while playing football are not common. Christopher<sup>1</sup> in 1934 stated that rupture of the intestine due to sport injuries is apparently exceedingly rare. He reported one case at this time and noted the reports of three others by Nadler<sup>2</sup> and Kinzel.<sup>3</sup> In view of widespread football interest, it appears timely to point out the possibility of this type of accident and to report a case which came under our care.

The following is the report of a high school football player having a subcutaneous rupture of the jejunum, operated on twenty-five hours after sustaining the injury and making a recovery.

**History**—G. C., a white youth, aged 19, was apparently kicked in the abdomen while engaged in tackling an opposing player. The kick was alleged to have taken place as the patient's abdomen met the moving foot of the opponent. Almost at the same time the patient fell forward, the abdomen hitting the ground rather violently, suggesting a second possibility for origin of the trauma. The injury occurred at 4 p. m. Oct. 13, 1936. The patient was breathless, his "wind having been knocked out." Going to the showers, after he regained his wind, he experienced cramplike abdominal pain. He vomited partially digested apples eaten just before practice. He was told to take a warm shower, which he did, obtaining complete relief from the abdominal pain. When he reached home he experienced similar cramping pains somewhat more severe and more continuous. Given peppermint drops, he immediately vomited, repetition produced the same result. The patient entered Receiving Hospital at 9 o'clock, five hours after the injury.

**Examination**—The patient appeared healthy and was well developed and nourished. He was 5 feet 8 inches (173 cm.) tall and weighed 160 pounds (72.6 Kg.). He had a normal temperature and pulse on admission. He did not appear ill and had only moderate concern for his abdominal pain, insisting that it was improving. Careful examination of the head, chest, heart, back and extremities revealed no evidence of injury or intrinsic pathologic changes. The systolic blood pressure was 120, the diastolic 76. The abdomen, which was symmetrical in contour, presented marked tenderness limited to the hypogastrum and was associated with muscle spasm mainly of voluntary character. Rebound tenderness was not present. No distention or fluid could be elicited. The patient voided voluntarily. Laboratory studies revealed urine normal, hemoglobin 13 Gm., color index 0.8, red blood cells 4,700,000, white blood cells 22,200 with 28 per cent nonfilaments, 66 per cent filaments and 6 per cent lymphocytes.

The impression at this time was that the patient had sustained an intra-abdominal accident and that prompt operation was imperative. This suggestion was met by stubborn refusal on the part of the patient and his father.

**Preoperative Interval**—The patient slept fairly well during the night, awakening occasionally and complaining of moderate pain. At 6 a. m. October 14, he said that he was somewhat nauseated but wanted something to eat. Further attempts made to convince both the father and the patient that exploration was necessary were futile. The father was finally persuaded to call the family physician, who in turn emphasized the urgent need for operation. At 4 p. m., the patient vomited for the first time since hospitalization, pain increased, and with this unfavorable trend consent for operation was obtained. Examination of the

abdomen at this time showed the tenderness to be in the epigastrium and the left upper quadrant. Rebound tenderness was present. Moderate involuntary rigidity was present in the upper portion of the abdomen. There was no distention. In the interval the patient's temperature had risen to 100.8 F. at 8 a. m., falling to 99 F. at 4 p. m. The pulse at 8 a. m. was 54 and at noon 130, falling to 90 just before operation.

**Operation**—This was begun at 5 p. m. under gas ether anesthesia, twenty-five hours after the accident. By means of a left rectus incision, the abdominal cavity was opened. A large quantity of turbid fluid escaped and by suction approximately 1,000 cc. of fluid was removed. Partially digested beans were present in the fluid. Large plaques of fibrinous exudate covered coils of small intestine in the upper left quadrant. Examination revealed that the stomach was intact. There was a longitudinal tear fully 2½ inches (6.4 cm.) long in the antimesenteric surface of the jejunum about 1 inch (2.5 cm.) below the ligament of Treitz. Closure was effected, reinforced by a Lembert suture. Further exploration revealed no other evidence of injury except a contusion to the transverse colon with subserosal hemorrhage. Drainage of the pelvis and lateral gutters were established by appropriate incisions and drains.

**Postoperative Course**—The patient's immediate postoperative state was critical. The pulse rate rose to 160 and the temperature to 106 F. within the first twenty-four hours. Gradual improvement then occurred, marked by a steadily declining temperature and pulse rate, which reached normal on the eighth postoperative day. Normal for three days, the temperature then became irregular, reaching a maximum of 101 F., the result of an infection of the incision. On the twenty-first postoperative day signs and symptoms of a partial intestinal obstruction appeared. Conservative therapy by suction drainage of the stomach proved effective. Healing of the wound occurred by second intention, resulting in a prolonged hospital stay of forty-seven days and an incisional hernia. A gastro-intestinal series prior to discharge revealed no abnormalities.

The patient returned four months after discharge for the repair of the incisional hernia and made an uneventful recovery. He is now in excellent health.

1306 David Whitney Building

#### COMBINED EXTRA-UTERINE AND INTRA-UTERINE PREGNANCY

E. JOHN DOLAN, M.D., NEW YORK

This is the report of a case of combined extra-uterine and intra-uterine pregnancy which resulted in a living issue. Because this condition is comparatively rare and because it results in a full term child in only a small proportion, I feel justified in making this presentation.

Ectopic gestation occurs, according to Schumann,<sup>1</sup> one in 303 pregnancies. Parry,<sup>2</sup> in an early review, found in 500 ectopic gestations twenty-two that were complicated by a simultaneous intra-uterine conception. To date there have been approximately 300 of this type reported. How many of these progressed to a full term uterine delivery is hard to say, but in the thirty-four cases reported by Novak,<sup>3</sup> twelve, or 35.3 per cent, were known to have resulted in a living child.

#### REPORT OF CASE

A white woman, aged 28, was brought into the Westchester Square Hospital by ambulance. There was nothing significant in the past history. A few hours before entrance she had a sudden severe pain in the left lower quadrant. There was no nausea or vomiting nor were there any urinary complaints. She had had irregular menses during the past few months and amenorrhea for the past six weeks, with some spotting two weeks before entrance.

The patient appeared acutely ill and pale but not in shock. She was alert and cooperative and the pulse was rapid but of good quality. Physical examination was essentially negative.

Read before the Bronx Surgical Society, Nov. 21, 1937.  
1. Schumann, E. A. *Extra Uterine Pregnancy*. New York: D. Appleton & Co., 1921.  
2. Parry, J. S. *Extra Uterine Pregnancy*. Philadelphia: H. C. Lea, 1876.  
3. Novak, Emil. *Combined Intra Uterine and Extra Uterine Pregnancy*. Surg. Gynec. & Obst. 43: 26-37 (July) 1926.

From the Surgical Department, Wayne University School of Medicine.  
1. Christopher, Frederick. *Am. J. Surg.* 25: 341 (Aug.) 1934.  
2. Nadler, Zentralbl. f. Chir. 57: 2125 (Aug. 23) 1930.  
3. Kinzel, quoted by Nadler. *Breilauer Chirurgie Gesellschaft*, 1929.

except for rigidity and severe tenderness, with rebound tenderness in the left lower quadrant. Pelvic examination revealed a very tender cervix especially on motion. The cervix was soft. A tender palpable mass was felt on the left side. A diagnosis of ruptured ectopic pregnancy was made and operation was performed within a few hours.

When the abdomen was opened free blood was found in the peritoneal cavity. The left tube was ruptured and contained a two to three months fetus. The tube and the ovary were removed. The uterus showed enlargement and had the appearance of being pregnant. The abdomen was closed with a Penrose drain. The patient made an uneventful recovery and was discharged from the hospital twelve days after the operation.

The amenorrhea continued until the patient was again admitted to the hospital October 11 (six months and twenty days after operation), at which time she was delivered spontaneously of a full term normal child. The weight of the baby at birth was 8 pounds 3 ounces (3,714 Gm). The postpartum course was normal and the patient was discharged ten days later. The child was normal in every way.

## COMMENT

It is of interest to note that Parry was able to collect twenty-two cases of this condition reported before 1876. Later authors are of the opinion that the present rate of occurrence will increase with more widely applied scientific observation.

As Novak pointed out, most of these cases can be considered twin pregnancies. There are some on record, however, that are undoubtedly gestations superimposed on earlier ones. The case here reported appears to be of the twin pregnancy type.

The condition occurs largely in young women and in those with personal or family histories of multiple gestations.

The diagnosis is difficult, particularly in the earlier stages, as some cases are predominantly ectopic while others are predominantly uterine. In this case the menstrual history was very suggestive of the ectopic pregnancy. Even the enlarged uterus with softened cervix that was found might be an accompaniment of the tubal gestation.

2325 University Avenue

## HEAT SENSITIVENESS ASSOCIATED WITH DERMATOSIS AND POLLEN ATOPY

EDWARD W. MISKALL, M.D., FAST LIVERPOOL, OHIO

*History*—B. C., a white youth, aged 17, a student, consulted me March 25, 1936, complaining of a cutaneous eruption of the hands and fingers and attacks of generalized urticaria. The cutaneous lesions were first noticed simultaneously with symptoms of hay fever in June 1935, immediately after the patient had been pulling weeds. He attributed the symptoms to paint, which he had used that day, but avoidance of further contact with the paint had no effect on the symptoms and various local treatments applied since had been equally ineffective. The hay fever subsided in the late summer but the cutaneous lesions persisted. In January 1936 a severe attack of scarlet fever was followed by episodes of generalized urticaria, apparently consequent on exertion or on coming into a warm room. These attacks began with subjective sensation of heat and generalized flushing of the skin followed in a few minutes by generalized wheals. Cold air brought immediate relief.

The parents stated that the patient was a 'blue baby,' had never been strong and had frequently complained of pains around the heart, also that he had had convulsions in childhood following applications of camphor and menthol ointments and after quinine by mouth. He had had measles, pertussis and chickenpox in childhood, diphtheria at 6 followed by cervical adenitis of six weeks duration, and a tonsillectomy at 11.

No allergy, heart disease or tuberculosis was known to have occurred in the family.

*Examination*—The patient was pale and asthenic without cyanosis, edema or icterus. The temperature at 1 p.m. was 98.6 F, the blood pressure 122 systolic, 76 diastolic, his weight 125 pounds (56.7 kg) and his height 69½ inches (177 cm). The nasal septum was deviated to the right with partial obstruction. The heart and lungs were entirely normal.

Nothing abnormal was noted on examination of the abdomen, genitalia, rectum, reflexes and lymph glands. An impetiginous dermatitis covered the hands and fingers. There was moderate demographism.

The urinalysis and the blood count were entirely normal. There was no eosinophilia. The Wassermann and Kahn reactions were negative. The basal metabolic rate was 0 and plus 5 per cent on consecutive days.

Patch tests with camphor and menthol (1 per cent in oil), body paint and Japanese dryer (10 per cent in oil), allergenic oils of orchard grass, sweet vernal grass and timothy were negative. A test with crushed leaf of timothy, as suggested by Dr. Coca<sup>1</sup> could not be carried out. Scratch tests with quinine hydrochloride 1 per cent in water and with quinine sulfate 1.40 in glycerin<sup>2</sup> were negative, with timothy, orchard, sweet vernal and June grasses, 4 plus. Temperature tests: A square of gauze wrung out of hot water and applied to the forearm produced in five minutes localized marked erythema and urticaria. Immersing the forearm in water at 100 F produced in seven minutes localized urticaria, which disappeared quickly in cold water. Room temperature of 80 F produced generalized urticaria, as did vigorous exercise. Ice applied to the skin was without effect. Orally, quinine sulfate and quinidine, 0.3 Gm each, were without ill effect. The patient declined further allergic studies.

*Treatments*—Intensive preseasonal desensitization to offending pollens was followed by a mild attack of hay fever in 1936. Local treatments were applied to the hands as follows: boric acid soaks, an ointment of tar, mercury and Burrow's solution, treatments of one-fourth unit of unfiltered  $\gamma$ -rays, 2 milliamperes, 6 inch spark gap, 8 inch distance, forty-five seconds. Heat sensitiveness was treated by graduated exercises and by baths beginning with thirty seconds at 65 F and increasing daily in time and temperature until thirty minutes at 90 F produced no urticaria. By midsummer urticarial attacks were rare and very mild, but the dermatosis was only slightly improved. The patient was not observed in 1937.

## COMMENT

It may be doubted that the dermatitis in this case was due to pollen, since it did not show seasonal variation and patch tests were negative. There was no opportunity for further patch testing with the crushed leaves of the suspected plants. Brown, Milford and Coca<sup>3</sup> place pollen dermatitis in the class of contact dermatitides, with a basis in sensitivity comparable to ivy, sumac or primrose sensitiveness. They feel that it is not confined to persons subject to atopic hereditary influence but occurs in nonatopic persons as well. Grass dermatitis (spring group) is much rarer than ragweed dermatitis. Various dermatoses are recorded as being associated with physical allergy<sup>4</sup> but in the case here reported the dermatosis preceded the urticaria by six months, the latter following immediately on scarlet fever. Several of Duke's<sup>5</sup> cases of heat sensitiveness followed acute febrile illnesses. Whether a relationship exists in this case between the dermatosis and the heat sensitiveness is doubtful. C. H. Rowe<sup>6</sup> holds that heat sensitiveness is an unusual manifestation of food allergy. George Pines<sup>7</sup> is not in accord and maintains a nonallergic explanation of heat sensitiveness. Urbach and Faisal<sup>8</sup> reject the term physical allergy for the great majority of cases and suggest the term vasoneuropathy of physical origin. They think it not improbable that successful desensitization will be found to be of the nature of a nonspecific hypodermic rather than a phenomenon of specific allergic immunity.

Little Building

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# STRYCHNINE POISONING SUCCESSFULLY TREATED WITH SODIUM AMYTAL

REPORT OF TWO CASES

ROBERT E. PRIEST, M.D. WORTHINGTON, MINN.

Strychnine poisoning is a common cause of suicidal and accidental death. It appeals to one contemplating suicide because of its cheapness, accessibility and small lethal dosage. Sugar coated strychnine tablets intended for adult medication tempt children. About one third of the accidental deaths from 1926 to 1928 in children under 5 years of age insured by the Metropolitan Life Insurance Company were caused by strychnine.<sup>1</sup>

Many antidotes for strychnine poisoning have been suggested. One group of authors list twenty-six.<sup>2</sup> These include inhalation anesthetics, stimulants, vasodilators, sedatives and even bleeding. Emetics have also been used.<sup>3</sup> Not one of these methods is specific, many are ineffective and few can be accurately controlled.

In 1929 Zervas and McCallum<sup>4</sup> reported three cases of strychnine poisoning in human beings successfully treated with barbiturates. Lundy<sup>5</sup> commented on the successful use of barbiturates in strychnine poisoning in 1931. I have found more recent reports of eleven cases in which treatment with sodium amytal was successful, and three cases in which other barbiturates were successfully used.<sup>6</sup> There probably are others.

Because so few reports were found I thought that an account of two more patients successfully treated with sodium amytal might be of interest.

The physiology of the protective action of barbiturates against strychnine poisoning has been studied in animals by several investigators.<sup>7</sup> Various barbiturates have been shown to act as antidotes against strychnine in unanesthetized rats and rabbits. Swanson<sup>8</sup> showed that "sodium amytal by vein in small repeated doses antidotes 20, 25, 30 and up to 35 times the subcutaneous minimum lethal dose of strychnine sulfate in rabbits."

## REPORT OF CASES

**CASE 1**—W. M., a white man, aged 60, a farmer, became despondent over family affairs. At about 7:30 p. m., May 7, 1935, he mixed approximately 15 Gm (230 grains) of strychnine sulfate with water and drank it. He had just eaten his supper. He became extremely nauseated and vomited the meal and probably part of the strychnine. At 9 o'clock when I examined the patient he was in opisthotonos with all skeletal muscles contracted. When the muscles relaxed momentarily he told me that I could do him no good—that all was over. He was given 0.5 Gm (7½ grains) of sodium amytal intravenously. The muscles relaxed a few moments later and by 9:15 he was sound asleep.

My attention was then called to the patient's dog, which had been seen eating the vomitus in the yard and was now

lying rigid. I gave him 0.5 Gm (7½ grains) of sodium amytal intraperitoneally and the muscles relaxed almost immediately and he ran off.

The patient was brought to the hospital. About midnight the muscles became spastic again. The dose of sodium amytal was repeated. The patient slept all night and had no more spasms. In the morning he said that his body felt as it had been beaten.

The dog did not fare as well as his master and was found dead the next morning. His posture suggested that he died in a strychnine convulsion.

**CASE 2**—G. H., a white man, aged 56, a farmer, was brought to probate court May 15, 1937, for examination prior to commitment to a state hospital for inebriates. About fifteen minutes had elapsed from the time the sheriff took him from his farm until he reached court. As he entered the courtroom his legs became spastic. He said that he had taken poison when he saw the sheriff approach his farm. He refused to say what poison he had taken.

Because of the spasticity the poison was thought to be strychnine and the man was removed to the hospital quickly, where 0.5 Gm (7½ grains) of sodium amytal was injected intravenously. He slept ten minutes, then awakened. Tetani returned in a few moments. Complete rigidity of the legs could be elicited by a very slight jar of the bed. The dose of sodium amytal was repeated and the stomach was lavaged. The patient awakened in one hour with hyperactive reflexes. These gradually diminished and the patient slept. Fourteen hours later he awakened. His reflexes were still hyperactive but no other evidence of poisoning was present.

A specimen of the coffee with which the poison had been mixed was examined and was found to contain strychnine.<sup>9</sup>

Worthington Clinic

## EAR PHENOMENON IN LESIONS OF THE SYMPATHETIC NERVE

GEORGE B. HASSIN, M.D. CHICAGO

Professor of Neurology, University of Illinois College of Medicine  
Attending Neurologist, Cook County Hospital

Lesions of the sympathetic nerve in the cervical region or in the medulla oblongata cause among other pathologic features a typical triad known as the Horner or Horner-Bernard syndrome: narrowing of the palpebral aperture, miosis and enophthalmos, all on the side of the lesion. The narrowing of the palpebral aperture is due to paralysis of the tarsal muscle, which participates in the closure of the eye. Miosis is due to paralysis of the dilator of the pupil, and the enophthalmos to paralysis of the orbital muscle of Muller. In addition, one may observe protrusion of the pinna of the ear on the side of the lesion.

When one compares the two ears in a patient who has a lesion of the cervical sympathetic, it is easy to notice that on the healthy side the distance between the pinna of the ear and the mastoid is smaller than on the affected side and that the ear is somewhat drawn backward. It can be noticed by the examiner either by facing the ears or by comparing them from behind. This phenomenon has been observed by me for many years in lesions of the lateral or retro-olivary region of the medulla which is nourished by the posterior inferior cerebellar artery.

This area contains pathways conducting the sensations of pain and temperature for the ipsilateral side of the face (descending root fibers of the trigeminal nerve) and the contralateral side of the body (the lateral spinothalamic tract). The crossed dissociated sensory disturbances and the Horner syndrome form the main features of what is known as Waller-Berg's syndrome of occlusion of the posterior inferior cerebellar artery. However, other lesions of the retro-olivary area— inflammatory or traumatic—of the medulla may also produce some features of this syndrome which is unquestionably due to involvement of the sympathetic nerve fibers, whether outside or within the medulla. This has been demonstrated by Lasek.

9. Examination of specimen by courtesy of Harold A. Warrick, J. D. Department of Pharmacology, University of Minnesota Medical School, Minneapolis.

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and Sherrington<sup>1</sup> in monkeys. By electrical stimulation of the upper end of the divided cervical sympathetic nerve they produced, among other phenomena, a slight drawing backward of the pinna of the ear, so that it lay closer to the mastoid region and projected less from the side of the head. On the other hand, mere sectioning of the sympathetic nerve of monkeys caused constriction of the pupil, narrowing of the palpebral aperture, chiefly by drooping of the upper eyelid but partly by raising the lower, and projection of the pinna from the side of the head. The clinical observations fully bear out the correctness of the physiologic observations, and it would be proper to call the ear phenomenon here described "Langley-Sherrington sign."

Research Hospital

## Special Article

### OTHER FACTORS

#### LESS WELL KNOWN VITAMINS

C. M. McCAY, PH.D.

ITHACA, N. Y.

*This article and others recently published or to be published comprise a new series on the present status of our knowledge of the vitamins. They have been prepared under the general auspices of the Council on Pharmacology and Chemistry and the Council on Foods. The opinions expressed are those of the authors and not necessarily the opinions of either council. Reprints are not available but the articles will be published later in book form.—Ed*

Under the title of "Other Factors" one can include only a few of the many essential organic substances that various animal species seem unable to synthesize. The description of these substances is scattered throughout the vast literature of biology. Many more have probably been missed than have been found. Such substances may seem of little importance at this time but who can say when the needs of some insect with specific requirements may provide the key for studying the vitamin physiology of higher species? These ramifications of nutrition are well illustrated by the discovery of Trager and co-workers that a factor essential for growth of mosquito larvae is present in normal human urine but deficient in that of pernicious anemia patients.

To appreciate the expanse of unexplored fields in the domain of nutrition one need merely read some modern work such as "Culture Methods for Invertebrate Animals" by Needham<sup>1</sup>. All recent tests with insects indicate that they require special factors that have not been described thus far as essential for higher forms. Today one can only postulate that, as higher forms such as man lost their fins and acquired hands in the course of evolution, they also abandoned some of their primitive vitamin needs and acquired still others.

A detailed discussion of insect nutrition is not appropriate in this paper, but passing consideration is worth while. Some of the most primitive of insects, such as the common cockroach, require constituents of yeast such as the vitamin B fractions as well as other factors which still remain undescribed.<sup>2</sup> Crowell and McCay<sup>3</sup> found that even clothes moths require some of the fractions of yeast. No clear-cut evidence has ever appeared,

on the other hand, which indicates that any insect species requires either vitamin A or D, although certain lipid materials, possibly sterols, seem essential to such forms as the cockroach. As the insect field is explored further it is likely that needs for the fat soluble vitamins may appear.

Trager,<sup>4</sup> in discussing the nutrition of mosquito larvae concluded that there must be certain compounds other than the recognized vitamins that are essential. Frost and others found that mosquito larvae need certain essentials in yeast but not vitamin A, B, C, D or E. Fortunately, students of insect nutrition have recognized the limitations in the alphabet and have not attempted to label their discoveries with letters and subscripts. Such consideration for the future of the science of nutrition, however, must not be rewarded by neglect of their discoveries.

If one considers still lower forms than insects, one must enter the field of bacterial nutrition, where other parts of the alphabet, such as V and X, have been used to describe specific factors. Knight<sup>5</sup> has provided an excellent summary of the nutrition of bacteria with considerable space devoted to vitamin factors. The possible usefulness of even the molds in assaying the vitamins is forecast in the recent study of Meiklejohn.<sup>6</sup>

The minute amount of growth stimulants with which the nutrition student of the future will have to be concerned is suggested in the recent studies of Kogl,<sup>7</sup> who has isolated a factor for yeast which acts in a concentration of one part in four hundred billion. The comparative activity of some new and old compounds are shown in the accompanying table, from Kogl.

Little attention has been devoted to invertebrates other than the insects. However, Wulzen<sup>8</sup> and her associates have devoted many years to the study of planaria. In her earliest studies Wulzen recognized that

Comparative Activity of Several Compounds

Material	Organism	Dilution	Effect
Biotin	Yeast	1 400 000 000 000	Growth
Biotin	Yeast	1 40 000 000 000	Growth
Auxin A	Carrot	1 10 000 000 000	Retardation
Auxin A	Oats	1 1 000 000 000	Curvature
Thyroxine	Tadpole	1 5 000 000 000	Metamorphosis
Epinephrine	Frog's eye	1 20 000 000	Expansion

she was dealing with specific thermolabile substances that differ from the vitamins previously described. In recent attempts to isolate these factors, Greenberg and Schmidt<sup>9</sup> have concluded that they can be extracted from liver by ether but that they are not identical with either the phosphatids or the nonsaponifiable lipids. Bahrs<sup>10</sup> has found marked differences in the growth promoting power of the rabbit's intestine when fed to planaria, depending on such factors as age and diet of the rabbit. This opens a fertile field of investigation, planaria being used to assay tissues of higher forms.

<sup>4</sup> Trager, William. On the Nutritional Requirements of Mosquito Larvae *Aedes Aegypti* *Am. J. Hyg.* **22**: 475-493 (Sept.) 1935. <sup>5</sup> A Growth Factor Required by Mosquito Larvae *J. Exper. Biol.* **11**: 240-251 (April) 1937. <sup>6</sup> Trager, W., Miller, D. K., and Rhoads, C. P. The Absence from the Urine of Pernicious Anemia Patients of a Mosquito Growth Factor Present in Normal Urine *J. Exper. Med.* **67**: 469-480 (March) 1935.

<sup>7</sup> Knight, C. J. Bacterial Nutrition. Report 210. Medical Research Council, London, 1936.

<sup>8</sup> Meiklejohn, A. P. The Estimation of Vitamin B in Blood by a Modification of Schopfer's Test. *Biochem. J.* **31**: 1441 (Sept.) 1937.

<sup>9</sup> Kogl, F. Active Principles and Plant Growth. *Naturwissenschaften* **29**: 46, 1937.

<sup>10</sup> Wulzen, Rosalind. The Effect of Heating on Certain Food. *Univ. California Publ. Physiol.* **7**: 1, 1926.

<sup>11</sup> Greenberg, L. D., and Schmidt, C. I. A. Studies on the Properties of a Growth Promoting Factor for Planaria Maculata. *J. Exper. Zool.* **72**: 1-19, 1936.

<sup>12</sup> Bahr, Alice M. The Modification of the Normal Growth Promoting Power for Planarian Worms of the Digestive Mucosa of the Rabbit Under Variations in Diet. *Fa. ing. and Agr. Physiol. Zool.* **1**: 189-203, 1931.

<sup>1</sup> Langley, J. N., and Sherrington, C. S. On Pilomotor Nerve. *J. Physiol. Cambridge* **12**: 278, 1891.

<sup>2</sup> Needham, J. C. Culture Methods for Invertebrate Animals. Ithaca, N. Y.: Comstock Publishing Company, 1937.

<sup>3</sup> McCay, C. M. An Insect Test for Vitamin B Fractions. *Proc. Am. Soc. Biol. Chem.* **100**: 1331, 1933.

<sup>4</sup> The Nutritional Requirements of *Blattella Germanica*. *Physiol. Zool.* **9**: 89-103 (Jan.) 1935.

<sup>5</sup> Crowell, Mary F., and McCay, C. M. Nutritional Studies of the

Wearing Clothes Moth *Tineola biselliella* Hum. *Physiol. Zool.* **10**: 68, 1937.



## FACTOR H

The lower vertebrates, with the exception of fish, have been given little attention by students of nutrition. For the past period of nearly a century during which trout have been domesticated it has been known that the various species require some factor present in fresh meat. After a series of studies in which trout were fed synthetic diets of purified constituents supplemented with yeast, tomato juice and cod liver oil, McCay, Bing and Dilley<sup>11</sup> found that trout could not live unless fed a small amount of fresh meat. This component was termed "factor H." In a series of later studies it was found to be thermolabile and readily destroyed in the course of ordinary drying. However, part of it was preserved when such sources as liver were dried in vacuo in inert gas. This substance is present in all fresh body tissues that have been studied. It seems to be the dominant factor in the nutrition of trout. The literature concerning this factor has been reviewed recently.<sup>12</sup> This factor seems to be essential for carnivorous species such as the fox and the mink. In many respects factor H resembles the thermolabile substance that Wulzen has found essential for planaria.

The letter H has also been applied to a totally different substance, which Boohar<sup>13</sup> finds essential for rats. This factor is said to be heat stable but destroyed by alkali. She finds it essential for growth of the rat. Its relation to the similar factors postulated by others has been discussed in earlier chapters.

The term "vitamin H" has also been used at times by Paul Gyorgy<sup>14</sup> to describe one of the fractions concerned in rat dermatitis. A recent German work has included an entire section under the heading of "vitamin H."<sup>15</sup> In this summary Stepp and his co-authors define H as the dialyzable, heat stable substance which is set free from liver proteins by digestions and proteolytic enzymes, according to the observations of Gyorgy. They assume that this essential is needed by the rat, the chicken and man. There seems little justification for including all these diverse discoveries under this common name. Furthermore, one wonders why the term H should be used to describe the growth factor of Williams, Lewis or Hunt. Apparently the Germans are already marketing some preparations supposed to be concentrates of this factor under the names "Huco Salve" and "Murmil."

## MISCELLANEOUS GROWTH FACTORS

The literature dealing with lower forms of life teems with unnamed and ill defined vitamins. There are fewer such factors described for the vertebrates that are popular with orthodox students of nutrition, namely, the rat and the chicken. Since most of these have been considered in other papers in this series, only brief mention of them need be made here.

The growth factor for chicks described by Arnold and his associates<sup>16</sup> has proved to be the amino acid arginine, thus accounting for the growth stimulation by such products as peanut meal, liver residue and soy bean meal.

In 1931 Guha<sup>17</sup> found that there were certain factors in milk, grass, spinach and egg yolk that stimulated the growth of rats fed B fractions in the form of vitamin B<sub>1</sub> and autoclaved marmite. To preserve the fractions he found it essential to dry the products at 35 C in front of a fan. The potency of these materials was lost in both fractions through extraction with ether.

Hogan and his co-workers<sup>18</sup> have shown the need of herbivorous species for some factor that is present in plant juice or alfalfa. During the past two years, evidence has also accumulated in the Animal Nutrition Laboratory at Cornell that lambs require some factor other than the recognized vitamins, that is present in freshly sprouted oats. Kohler and his co-workers<sup>19</sup> noted the growth stimulating properties of grass juice.

In 1929 Coward and her associates<sup>20</sup> found that some factor was contained in certain preparations of casein and was deficient in others. When a particular sample of casein proved deficient it could be supplemented satisfactorily by milk, lettuce, liver or wheat embryo. These studies were made with rats in the course of other assays.

Liver has provided a fertile source of growth stimulants. It has long been recognized that the essential constituent for brook trout, factor H, is richest in beef liver. Likewise the vitamin requirements of such lower forms as planaria are completely satisfied by liver. The past ten years has indicated that liver has several essential factors, and there is little doubt that many will be discovered as new species are considered by students of nutrition.

In 1932 Mapson<sup>21</sup> postulated the existence of a growth factor in liver. It was soluble in 90 per cent alcohol and also in water after the liver was subjected to digestion with papain. This factor was named "physin." Seegers and his co-workers<sup>22</sup> also found that liver contained a growth factor. This tended to be lost on heating. Liver heated at 100 C for two weeks lost this capacity to stimulate the growth of rats, although the biologic value remained unchanged as far as the protein was concerned.

Elvehjem and his associates<sup>23</sup> have postulated several new factors. Among them is included one for stimulating the growth of rats. They found this in the alcohol ether precipitate from water extract of hog's liver. They find this is heat labile, so it falls among the thermolabile B factors and needs no further discussion here, other than to note it with the other factors of liver. This factor has recently been christened W by Frost and Elvehjem.<sup>24</sup>

Halliday and Evans<sup>25</sup> attempted to confirm the observations of Elvehjem and his co-workers but came to the conclusion that the precipitate from hog's liver

- 11 McCay C M, Bing F C and Dilley W E. Factor H in the Nutrition of Trout. *Science* 67: 249 (March 2) 1928.
- 12 McCay C M. The Biochemistry of Fish. *Ann Rev Biochem* 6: 445 1937.
- 13 Boohar Lela E. The Concentration and Properties of Vitamin H. *J Biol Chem* 119: 223 (June) 1937.
- 14 Gyorgy Paul. Stoffwechsel und Immunbiologie der Haut. *Handbuch der Kinderheilkunde* (Pfaundler Schlossmann) Berlin 10: 43 81 1935.
- 15 Stepp W, Kuhnau J and Schroeder H. Die Vitamine und ihre klinische Anwendung. Stuttgart Ferdinand Enke 1937.
- 16 Arnold Aaron, Kline O L, Elvehjem C A and Hart E B. Further Studies on the Growth Factor Required by Chick. *J Biol Chem* 116: 699 (Dec) 1936.

- 17 Guha B C. Observations on Certain Factors Necessary for Normal Nutrition of the Rat. *Biochem J* 25: 960 (No 3) 1931.
- 18 Hogan A G and Johnson S R. Plant Extracts in the Nutrition of Guinea Pigs and Rabbits. *Proc Soc Exper Biol & Med* 35: 214 (Nov) 1936.
- 19 Kohler G O, Elvehjem C A and Hart E B. Growth Stimulating Properties of Grass Juice. *Science* 63: 445 (May 8) 1936.
- 20 Coward Kathleen M, Key Kathleen M and Morgan Paul G E. Some Evidence of the Existence of a Further Factor Necessary for the Growth of the Rat. *Biochem J* 23: 695 (No 4) 1929.
- 21 Mapson L W. A New Dietary Principle in Liver. *J Biol Chem* 97: 970 (Nov 4) 1932.
- 22 Seegers W H and Mattill H A. The Nutritive Value of Fat, Heart, Kidney, Round and Liver After Heating, and After Alcohol Ether Extraction. *J Nutrition* 10: 271 (Sept) 1935.
- 23 Elvehjem C A, Koehn C J Jr and Olsen J J. An Essential Dietary Factor Found in Yeast and Liver Extracts. *J Biol Chem* 111: 707 (Oct) 1936.
- 24 Frost D and Elvehjem C A. Further Studies on Factor W. *Proc Soc Biol Chem* 34: 34 1937.
- 25 Halliday Nellie and Evans H M. On the Claim of an Essential Dietary Factor in Mammalian Liver. *J Nutrition* 11: 43 73 1937.

was carrying down vitamin B<sub>6</sub>. Therefore they decided that there was inadequate evidence to postulate such a new factor

The "Y factor" described by Chick and Copping<sup>26</sup> also is found in liver as well as in yeast and its water extracts. This factor is one of the B fractions needed for growth by the rat. Its nature is gradually becoming clear in the course of such thorough studies as those of Edgar and Macrae.<sup>27</sup> These authors find another factor adsorbed on fullers' earth which is neither vitamin B<sub>6</sub> nor riboflavin.

Among the liver extracts must also be included the filtrate factor of Lepkovsky and Jukes,<sup>28</sup> which seems potent in curing dermatitis in chicks, blacktongue in dogs and pellagra in man. This may be identical with the "Y factor," already described, and nicotinic acid, to be discussed later.

In order to rear chickens on synthetic diets, Hogan and his co-workers<sup>29</sup> had to supplement the basal diet with wheat germ oil, acid hydrolyzed yeast, tikitiki and liver extract in addition to carotene and irradiated ergosterol. One can only speculate concerning the undiscovered factors in such an array of supplements.

In 1928 Hunt<sup>30</sup> discovered that there were at least three factors in yeast that were essential for the growth of the rat.

In the course of growth studies with rats, Williams and Lewis<sup>31</sup> also found a factor left in yeast residues after extraction with water and alcohol. This growth factor could not be extracted with any solvent. No later work indicates its relation to the new B fractions.

Vitamin I, or B<sub>7</sub>, is the factor postulated by Centanni.<sup>32</sup> He found that an alcoholic extract of rice polishings prevented digestive disturbances in pigeons but did not prevent the symptoms of polyneuritis. Methyl alcohol was the best solvent among the alcohols. Ethyl alcohol was effective at from 95 to 100 per cent but extracted only part of this factor at a 70 per cent concentration.

This I factor recalls the claims of Rosedale<sup>33</sup> made ten years ago. At that time he precipitated the water extract of rice polishings with lead acetate and carried down a factor that permitted evacuation of the bowels and checked the constipation associated with polyneuritis in birds.

This also recalls the factor of Carter.<sup>34</sup> He found that the heart rate slowed down when pigeons were fed polished rice but that recovery was much slower from feeding B<sub>1</sub> than from such feedstuffs as yeast and wheat. All these factors are difficult to evaluate, since polished rice is such an unbalanced diet in many respects.

Factor J is the term applied by von Euler and Malmberg<sup>35</sup> to a substance found in fruit, especially St John's berries. This factor seems to cure pneumonia in guinea pigs, while cevitamic acid will not.

#### VITAMIN K AND OTHER BLOOD CLOTTING FACTORS

Vitamin K is a specific fat soluble substance the absence of which in the diet of chickens causes the blood to become very slow in clotting. Thus far no evidence has indicated its importance for other species, although attempts to study the requirements of other species have been very limited.

The observations that led to this discovery were made by Dam<sup>36</sup> while attempting to determine whether hens could synthesize cholesterol. At this time he was feeding a synthetic diet composed of casein, starch, salt, marmite, filter paper and cod liver oil. In earlier studies, using a similar diet, he had observed subcutaneous and intramuscular hemorrhages as well as erosion of the gizzard. He had also noted that these chickens were anemic and that the number of erythrocytes was only about two million instead of three or more. In 1930 Horvath<sup>37</sup> also observed that the coagulation of the blood of chickens was accelerated by diets of sprouted soy beans.

The same hemorrhagic condition described by Dam was reported by McFarlane and his associates<sup>38</sup> in 1931 when they were attempting to establish the need of chickens for fat soluble vitamins. These workers were employing diets of about 70 per cent rice and 15 per cent marmite supplemented with various protein sources such as fish meal and casein. They suffered heavy losses from hemorrhage in chickens fed on a diet containing ether extracted fish meal but no losses if the fish meal was not extracted. Further, they found that blood from chickens fed this extracted fish meal could set in the laboratory over night without clotting.

In 1934 Dam and Schönheyder<sup>39</sup> found that this disease, which resembled scurvy in some respects, developed if chicks were fed cereals but that otherwise it developed even if the diet contained 15 per cent yeast. Neither lemon juice nor cevitamic acid alleviated the symptoms.

In the course of further studies it was found that the fats of hog's liver and hemp seed were rich in the factor while the fats from rye, sunflower, corn and rice had no effect. Cod liver oil was also without effect.

Dam and his co-workers<sup>40</sup> later found that the normal amount of prothrombin was lacking in chickens fed a diet deficient in vitamin K. The condition could be developed in about three weeks on a diet of casein 10, ether extracted pig's liver 10, dried yeast 15, sucrose 62.3, salt mixture 2.7 and cod liver oil 4. Three days after vitamin K is fed to deficient animals the blood becomes normal.

26 Chick, Harriette, and Copping, Alice M. The Composite Nature of the Water Soluble Vitamin B<sub>1</sub>. *Biochem J* 24: 1764 (No. 6) 1930.

27 Edgar, Constance E. and Macrae, T. F. Essential Dietary Factors for the Rat Present in Autoclaved Yeast in Addition to Lactoflavin. *Biochem J* 31: 886 (June) 1937.

28 Lepkovsky, Samuel and Jukes, T. H. The Effect of Some Reagents on the Filtrate Factor a Water Soluble Vitamin Belonging to the Vitamin B Complex and Preventing a Dietary Dermatitis in Chicks. *J Biol Chem* 114: 109 (May) 1935. Fouts, P. J. Lepkovsky, Samuel, Helmer, O. M. and Jukes, T. H. Successful Treatment of Human Pellagra with the Filtrate Factor. *Proc Soc Exper Biol & Med* 35: 345 (Nov.) 1936.

29 Hogan, A. G., Boucher, R. V. and Kempster, H. L. Simplified Rations for the Chick. *J Nutrition* 10: 535 (Nov.) 1935.

30 Hunt, C. H. Further Evidence of the Complex Nature of Vitamin B<sub>1</sub>. Evidence that a Third Factor Exists. *J Biol Chem* 79: 723 (Oct.) 1928.

31 Williams, G. Z. and Lewis, R. C. Evidence for the Presence of a Third Factor in the Vitamin B Complex of Yeast. *J Biol Chem* 89: 275 (Nov.) 1930.

32 Centanni, E. The Enteral Vitamin I B Regulating Digestive Functions of Pigeons. *Biochimica et therapia* 22: 137 (April) 1931.

33 Rosedale, J. R. Preliminary Note on Possible Factor Biochem J 21: 1266 (No. 4) 1927.

34 Carter, C. W. Heart Block in Pigeons. Curative Factor. *Biochem J* 24: 1811 (No. 6) 1930.

35 von Euler, Hans, Söder, Harald and Malmberg, May. The Action of Nutrient Factor J on the Development of Pneumonia in Guinea Pigs. *Ztschr f Hyg u Infektionskr* 116: 672 (Feb. 25) 1935. *Chem Abstr* 29: 5890.

36 Dam, Henrik. Cholesterol Synthesis in the Animal Body. *Biochem Ztschr* 220: 158 1930. Cholesterol Metabolism in Chickens and Chicken Eggs. *ibid* 215: 475 1929.

37 Horvath, A. A. Changes in Hens' Blood Produced by a Diet of Sprouted Soy Beans. *Am J Physiol* 91: 65 68 (July) 1930.

38 McFarlane, W. D., Graham, W. R. and Richard, on Frederick. The Fat Soluble Vitamin Requirements of the Chick. I. The Vitamin A and Vitamin D Content of Fish Meal and Meat Meal. *Biochem J* 25: 558 (No. 1) 1931.

39 Dam, Henrik and Schönheyder, Fritz. A Deficiency Disease in Chicks Resembling Scurvy. *Biochem J* 28: 1355 (No. 4) 1934.

40 Dam, Henrik. The Antihemorrhagic Vitamin of the Chick. Nature 125: 652 1933; *Biochem J* 29: 123 (June) 1935. Schönheyder, Fritz. Measurement and Biological Action. Nature 125: 652 1935. Dam, Henrik, Schönheyder, Fritz and Tare, Hans. Fri. Studies of the Mode of Action of Vitamin K. *Biochem J* 30: 1075 (June) 1936. Schönheyder, Fritz. The Quantitative Determination of Vitamin K. *ibid* 30: 890 (May) 1936. Dam, Henrik and Schönheyder, Fritz. Vitamin K. *Nordred tidn* 12: 1077 (July) 1936.

Rats and guinea pigs were fed a diet similar to that used for the chickens but no symptoms developed. A man suffering from hemophilia also yielded no response to the feeding of concentrates of the vitamin.

The factor was concentrated by Almquist<sup>41</sup> in 1936 so that 2 mg formed a sufficient supplement for 1 Kg of feed. This concentrate was prepared from a hexane extract of alfalfa. By distillation this material was concentrated still further. Under very low pressures the potent material could be distilled at from 120 to 140 C. This vitamin is unstable to alcoholic alkali and is unsaturated as well as colorless. It has no sulfur or phosphorus but a small amount of nitrogen. Color tests indicate an indole nucleus.

This vitamin seems to be synthesized by bacterial action, since its amount tends to increase in feedstuffs subjected to such action. The amount also increases in the feces of chicks on the deficient diet if these stand for a day. The diet of the hen may also influence the development of the disease in chicks.

About 1931 claims were made that vitamin A was concerned with the clotting of blood. As pure preparations became available, however, this was disproved. Recently, however, Schiff and Hirschberger<sup>42</sup> have found that there is some factor, which they term T, in egg yolk and sesame oil. This seems to increase the platelet count in both human and rat blood. They found that from five to ten drops of sesame oil per day or five egg yolks affords ample of this essential for treating children. It has also been claimed that semi-fasting dogs develop a severe thrombopenia and need this essential. Evidence is not clear that factor T and vitamin K are related.

The failure of blood to coagulate in "sweet clover disease" has long been recognized especially in young cattle that have consumed partly spoiled clover.<sup>43</sup> Quick<sup>44</sup> finds that this disease can be reproduced in rabbits. It is cured by feeding alfalfa. However, this disease is not related to the vitamin other than that alfalfa probably acts in furnishing materials for the synthesis of prothrombin. Hogan<sup>45</sup> also observed that the ether extract of alfalfa prevented the hemorrhages of the nursing young in the case of rabbits.

It is well known that some fish meals are injurious to animals. Scott and Cook<sup>46</sup> find that this injury is due both to the deficiency of vitamin K and to toxic factors in the fish meal. The toxic factor is chiefly reflected in the distorted blood picture with marked increase in lymphocytes and leukocytes.

#### GIZZARD EROSION FACTOR

The erosion of the gizzard was observed early in the studies of Dam. The question of whether or not this is due to a specific deficiency is still unsettled. Almquist and Stokstad<sup>46</sup> found that it was cured by a saponifiable fraction of the hexane extract of alfalfa or

dried kale. Cod liver oil, wheat germ oil, orange oil, egg yolk and alfalfa ash failed.

Bird and his associates<sup>47</sup> seemed to feel that this factor was specific but its properties, as far as solvent are concerned, conflicted with those found by Almquist. Thus the Wisconsin workers found the factor in such materials as pork lungs, liver and kidneys but they were not able to extract it with water, alcohol or ether. They found it to be labile to both dry heat and autoclaving at 120 C. Among the grains they found oats the best. In their hands alfalfa was not potent. Further studies will undoubtedly be needed to determine whether this is a specific factor.

#### VITAMIN P

Vitamin P is the term applied by Rusznayak and Szent-Gyorgyi<sup>48</sup> to a substance that occurs in lemon juice and red peppers. In certain pathologic conditions characterized by increased permeability of the capillary wall, they found injection of concentrates to be effective when cevitamic acid failed. The early work indicated that the effective agent belonged to the vegetable dyes of the flavine group.

Workers from the same laboratory used guinea pigs that were fed a diet to produce scurvy. They found that these animals finally died of scurvy if fed the concentrate of vitamin P termed "citrim." However, these animals lived for about forty-four days, while the others lived only twenty-eight days.

In a later study Bruckner and Szent-Gyorgyi<sup>49</sup> found citrim to be a mixture of hesperidine and eriodictyol glucoside and ascribed the activity and color to the latter. In unripe oranges they found much hesperidine but not much of the other compound.

The existence of this "vitamin P" has been questioned by Zilva.<sup>50</sup> He presents evidence which, as far as the experiments on guinea pigs are concerned, indicates that there is no reason for postulating a new factor. His work seems to show that the animals were suffering from vitamin C deficiency, which was relieved to a slight extent by contamination of the "citrim."

#### NICOTINIC ACID

From time to time nicotinic acid returns among the growth stimulants that resemble vitamins. Thus the Funk<sup>51</sup> have presented evidence recently that the growth of rats and pigeons is stimulated by such derivatives. This work is interesting in the light of the need of staphylococcus for the same essential as a supplement to B<sub>1</sub> as reviewed by Kogl.<sup>52</sup> Furthermore Elvehjem and his co-workers<sup>53</sup> have found that nicotinic acid will cure blacktongue in dogs. The workers have isolated considerable amounts of crystalline nicotine amide from active liver fractions. The effectiveness of this compound in the treatment of human pellagra has now been established and is discussed elsewhere.

#### TOXIC SUBSTANCES

The specific toxicities of various foodstuffs and the counter action of other vitamin-like components of the

41 Almquist H J Purification of the Antihemorrhagic Vitamin I Biol Chem 111 241 (May) 1936 Purification of the Antihemorrhagic Vitamin by Distillation ibid 115 589 (Sept) 1936 Chemical and Physical Studies on the Antihemorrhagic Vitamin ibid 117 517 (Feb) 1937 Almquist H J and Stokstad E L R Factors Influencing the Incidence of Dietary Hemorrhagic Disease in Chicks J Nutrition 12 329 (Oct) 1936  
42 Schiff E and Hirschberger C Weitere untersuchungen zur Frage des Morbus maculosus Werlhofii A Vitamin and Thrombozytose Jahrb f Kinderh 147 81 (July) 1936  
43 Morrison T B Feeds and Feeding ed 20 Ithaca N Y Morrison Publ'g Comp'ny 1936  
44 Quick A J The Coagulation Defect in Sweet Clover Disease and in the Hemorrhagic Disease of Dietary Origin Am J Physiol 115 260 (Feb) 1937  
45 Scott K C and Cook S F The Syndrome Induced in Poultry by an Intoxication Factor and Its Relation to the Antihemorrhagic Factor Univ Calif Pub Physiol 8 135 1936  
46 Almquist H J and Stokstad E L R A Nutritional Deficiency Cause Gizzard Erosions in Chick Nature 137 581 (April 4) 1936

47 Bird H R Kline O L Elvehjem C A Hart F I and Halpin J G The Distribution and Properties of the Antihemorrhagic Factor Required by Chicks J Nutrition 12 541 (Dec) 1936  
48 Rusznayak S and Szent-Gyorgyi Albert Vitamin I Nature 138 27 (July 4) 1936 Bentsen A Luszayak and Szent-Gyorgyi Albert Vitamin Nature of Flavone ibid 139 798 (Nov 7) 1936  
49 Bruckner A and Szent-Gyorgyi Albert Chemical Nature of Citrim Nature 138 1057 (Dec 19) 1936  
50 Zilva S S Vitamin P Biochem J 31 215 (Jun) 1937  
51 Funk C S and Funk L C The Value of Nicotinic Acid in Nutrition Proc Soc Biol Chem 31 3 1935  
52 Elvehjem C A Nielsen R J and Stokstad E L R Relation of Nicotinic Acid and Nicotinic Acid Amide to Blacktongue J Am Chem Soc 59 1767 1937

diet cannot be neglected in a discussion of vitamins, although the subject material is too extensive for detailed consideration here. Throughout the literature on nutrition one is confronted from time to time with reports of toxicities from natural feedstuffs, especially when they are fed in certain mixtures. A few of the products that can be recalled readily are linseed meal, cottonseed meal, wheat, corn, oats, clover, fish, fish liver oils and egg white. Even in the case of such a familiar product as linseed meal, in which the evidence is quite clear that a glucoside is the toxic agent, one who reviews the literature critically is aware of the many discrepancies involved. When one undertakes to analyze the various factors that interplay to protect or poison an animal with the cyanides from such products, the problem becomes more complex.

In recent years definite advances have been made in studying the neutralization of food toxins by vitamin-like substances in only a few cases.

In 1916 Bateman noted the toxicity of large amounts of egg white and the loss of this property after heating, acid denaturation and proteolytic digestion, according to Stepp and his associates.<sup>15</sup> In 1927 Boas<sup>53</sup> found that rats suffered from dermatitis when the protein of the diet was supplied by certain forms of dried egg white. However, she learned that this disease could be cured if the wheat starch in the diet was replaced by potato starch. At the end of her first study she was uncertain whether she was dealing with a vitamin deficiency or a toxicity. Later she seemed to lean to a toxicity theory.

Parsons and her associates<sup>54</sup> have given special attention to this problem in recent years. They find that the toxicity of dried but uncoagulated egg white is rendered innocuous either by cooking, as observed by Boas, or by feeding substances such as dried yeast or dried liver. Furthermore, these workers report that the neutralizing factor is found in the organs of different species in different amounts. Human liver varies in its concentration of the factor while turkey liver is very rich.

The toxicity of fish liver oils is another field that has been studied during the past ten years. To Agduhr<sup>55</sup> must be given the credit for recognizing clearly that cod liver oil contained some factor that caused the degeneration of muscle tissue in herbivora. He also recognized from the beginning that this toxic factor of cod liver oil interplayed with other constituents of the diet. The ability of alfalfa to counteract partly this toxic property was recognized by Woodward and McCay.<sup>56</sup> Madsen and his co-workers<sup>57</sup> also found that this toxicity interplayed with the remainder of the diet. However, no diet was devised that would do more than delay the development of the degenerative changes. Later Madsen<sup>58</sup> found that cottonseed oil would partly

counteract this toxic factor of cod liver oil. Even in rats Norris and Church<sup>59</sup> found that yeast and cod liver oil interplayed in the diet. Instead of a sparing action on the B requirements by the fat of cod liver oil, they found that they must increase these B factors to obtain normal growth. This finding is especially interesting, since the rat is so immune to most food toxins compared to such species as guinea pigs. Recently Yamamoto<sup>60</sup> extended this study of the interplay between yeast and the toxic factors of cod liver oil.

This toxic factor of cod liver oil in the case of herbivora is shown in two ways: first, in degenerative changes in tissues and second, in lowering the secretion of the milk fat by a lactating cow. Limited evidence indicates that the toxic factor is the same in the two cases, according to the observations of McCay and Maynard.<sup>61</sup> This factor is found in the saponifiable fraction and is probably an unsaturated compound, since hydrogenation of cod liver oil causes it to lose this toxic action. No explanation has been offered concerning the method by which such substances as alfalfa and yeast can react with an unsaturated fatty acid to remove its toxic action.

Hilditch and Thompson<sup>62</sup> have produced evidence indicating that the unsaturated fatty acids of the C<sub>20</sub>-C<sub>22</sub> series may account for part of the toxic action of cod liver oil. This is probably only part of the explanation, however, because salmon oil, which is rich in these same compounds, fails to produce the consistent effect of cod liver oil in lowering the secretion of milk fat. No mechanism has been devised to explain the interplay between dietary constituents in the case either of poisoning from egg white or of that from cod liver oil.

Finally a third field that has been given considerable attention in recent years is that concerned with the cerebellar disorder in chicks first discovered by Pappenheimer and Goettsch.<sup>63</sup> They found this to be produced in chicks fed a diet of milk powder, casein, starch, yeast, cod liver oil, salts and filter paper. In ducks fed a similar diet, injury to the muscles developed with no effect on the brain,<sup>64</sup> an observation of special interest because it shows that a science of nutrition cannot be grounded on one or two species such as the rat and the chicken. In later studies, vegetable oils, incorporated in the diet at 20 per cent levels, were found to afford complete protection in the case of chicks.<sup>65</sup>

Jungherr and Pappenheimer have found more recently that turkeys respond to this diet in a still different manner. This species develops selective necrosis of the smooth muscle of the gizzard wall.<sup>66</sup>

#### CONCLUSIONS

In such a review as this, which by its nature covers much of the vitamin literature that has not been amply confirmed, one must recognize that it will become obsolete in part, at least, by the time it is printed.

53 Boas, Mary Averil. The Effect of Desiccation upon the Nutritive Properties of Egg White. *Biochem. J.* **21**: 712, 1927. Finsen, Margaret. Aerial Boas. The Effect of Desiccation upon the Nutritive Properties of Egg White. *ibid.* **25**: 596 (No. 2) 1931.

54 Parsons, Helen T. and Lea, Jane G. Variations in the Potency of Certain Foodstuffs in the Cure of Dermatitis Induced in Rats by Dietary Egg White. *J. Nutrition* **8**: 57 (July) 1934. Parsons, Helen T., Lea, Jane G. and Johnson, Doris. The Storage in the Body Organs of the Factor Protective Against the Injury Due to Dietary Egg White. *Proc. Soc. Biol. Chemists* **31**: 77, 1937.

55 Agduhr, Erid. Postnatal Development Under Different Conditions of Nutrition and Circumstances of Functioning. I. The Changes in the Heart Through the Presence of Cod Liver Oil in the Food. *Acta paediat.* **5**: 319, 1926.

56 Woodward, J. W. and McCay, C. M. Synthetic Diets for Herbivora. *Proc. Soc. Exper. Biol. & Med.* **30**: 241 (Nov.) 1932.

57 Madsen, L. L., McCay, C. M. and Maynard, L. A. Synthetic Diets for Herbivora with Special Reference to the Toxicity of Cod Liver Oil. *Memoir* 178, Cornell Univ., 1935.

58 Madsen, L. L. The Comparative Effects of Cod Liver Oil Cod Liver Oil Concentrate, Lard and Cottonseed Oil in a Synthetic Diet on the Development of Nutritional Muscular Dystrophy. *J. Nutrition* **11**: 1 (May) 1936.

59 Norris, E. R. and Church, Anna E. The Toxic Effect of Fish Liver Oil and the Action of Vitamin B. *J. Biol. Chem.* **89**: 437 (Nov.) 1930.

60 Yamamoto, I. Toxicity of the Fish Liver Oil and the Antitoxic Effect of Yeast in the Diet. *Chem. Abstr.* **15**: 590, 1936.

61 McCay, C. M. and Maynard, L. A. The Effect of Ingested Cod Liver Oil, Shark Liver Oil and Salmon Oil upon the Composition of the Blood and Milk of Lactating Cow. *J. Biol. Chem.* **109**: 29 (April) 1935.

62 Hilditch, T. P. and Thompson, H. M. The Effect of Certain Ingested Fatty Oils upon the Composition of Milk Fat. *Biochem. J.* **30**: 677 (No. 4) 1936.

63 Pappenheimer, A. M. and Goettsch, Marianne. A Cerebellar Disorder in Chick Apparently of Nutritional Origin. *J. Exper. Med.* **53**: 11 (Jan.) 1931.

64 Pappenheimer, A. M. and Goettsch, Marianne. Nutritional Myopathy in Duckling. *J. Exper. Med.* **59**: 35 (Jan.) 1934.

65 Pappenheimer, A. M. and Goettsch, Marianne. Protection Afforded by Certain Vegetable Oil Against Nutritional Fatty Acidosis of Chick. *Proc. Soc. Exper. Biol. & Med.* **31**: 777 (April) 1933.

66 Jungherr, E. and Pappenheimer, A. M. *Proc. Soc. Exper. Biol. & Med.* **37**: 50, 26, 1937.

However, certain trends are clear. The science of nutrition is slowly extending to include more animal species. Each species that is included leads to the discovery of new vitamin requirements and specific reactions to mixtures of feedstuff. However, this broadening of the base must lead to a more complete science capable of providing generalizations with more certainty. Finally the need for better systems of naming new vitamins is obvious. The biologist who feeds animals must inevitably precede the chemist in the discovery of new essentials. The isolation of new factors is slow because these factors depend on biologic testing as well as involved technics. For this reason it is likely that there will be an increasing accumulation of vitamins awaiting the organic chemist. A better system of numbering them must be devised to prevent confusion in the period between their discovery and their isolation. Possibly some numbering system issued from a central office such as that of the League of Nations must be resorted to in the near future.<sup>67</sup>

## Council on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED

FRANKLIN C. BING, Secretary

#### NUTRADIET SMALL WHOLE STRINGLESS BEANS PACKED IN WATER

*Distributor*—The Nutradiet Company, a subsidiary of S & W Fine Foods, Inc., San Francisco

*Description*—Canned beans packed in water without added salt or sugar

*Manufacture*—Blue Lake Stringless beans are inspected, snipped, again inspected, graded, inspected again, blanched, sprayed with cold water and packed into cans by hand. Hot water is added. The containers are sealed without exhausting. No. 2 cans are processed at 116° C for twenty-five minutes and cooled by the air injection method. Sometimes the vines are sprayed with nicotine insecticides. The packer believes that any spray residue is satisfactorily removed by the method of preparation. Not more than twenty-four hours elapses between the picking of the beans and the end of the canning process.

*Analysis* (submitted by manufacturer)—Moisture 95.6%, total solids 4.4%, ash 0.4%, fat (ether extract) 0.1%, protein (N × 6.25) 1.4%, crude fiber 0.4%, carbohydrates other than crude fiber (by difference) 2.1%

*Calories*—0.15 per gram, 4 per ounce

*Claims of Manufacturer*—For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition

#### STEPHENS BRAND PURE LEMON JUICE

*Manufacturer*—Natural Food Products Company, Orange, Calif.

*Description*—Canned lemon juice

*Manufacture*—Tree ripened lemons, on which no arsenical sprays are used, are washed, dried, inspected, cut in half and the juice removed. The juice is sieved, deaerated and then subjected briefly to ultraviolet rays to inactivate "enzymes" and to reduce the bacterial count. The finished juice is filled into cans, sealed under high vacuum, pasteurized and cooled.

*Analysis* (submitted by manufacturer)—Moisture 89.9%, total solids 10.1%, ash 0.4%, fat (ether extract) 0.1%, protein (N × 6.25) 0.5%, crude fiber 0.01%, nonreducing sugars as sucrose 0.05%, reducing sugars as invert sugar 1.58%, carbo-

hydrates other than crude fiber (by difference) 2.3%, titratable acidity as citric acid 6.85, specific gravity 20/20° C. 1.03, vitamin C (iodine titration) 59 mg per hundred cubic centimeters (1,200 international units)

*Calories*—0.1 per gram, 3 per ounce

*Vitamins*—The product contains 355 international units of vitamin C per fluidounce

#### MULKEY'S THE ORIGINAL "IODINE" SALT

*Distributor*—Mulkey Salt Company, Detroit

*Description*—Table salt containing 0.023 per cent of potassium iodide and 1 per cent of magnesium carbonate

*Manufacture*—Pure water is pumped down through typical salt well casings to the salt deposit, where it forms a brine which is brought to the surface and evaporated. The sodium chloride crystallizes out and is washed with pure brine, then dried and the crystals are screened to uniform size. The salt is mixed with magnesium carbonate, which tends to keep it free running. The iodine is added by weighing out on an accurate scale a high concentration of potassium iodide sodium chloride mixture. Following the addition of this mixture the final mixture is compounded, packed in special cartons and sealed.

*Analysis* (submitted by manufacturer)—Calcium chloride, trace, calcium sulfate 0.31%, sodium sulfate, trace, magnesium carbonate 0.62%, sodium carbonate 0.10%, potassium iodide 0.023%, sodium chloride (by difference) 98.9%

#### BORDEN'S CHATEAU PIMIENTO

*Manufacturer*—The Borden Company, New York

*Description*—Mixture of Cheddar cheese, cream, skim milk powder, pimiento, water, disodium phosphate, sodium chloride, sodium citrate, citric acid and annatto

*Manufacture*—The manufacture is essentially the same as that described for Borden's Chateau (THE JOURNAL, March 20, 1938, p. 958) except that pimiento peppers are added to the Borden's Chateau mix immediately before pasteurization.

*Analysis* (submitted by manufacturer)—Moisture 39.5%, total solids 60.5%, total ash 5.0%, sodium chloride (NaCl) 1.9%, fat (ether extract) 31.1%, protein (N × 6.38) 21.7%, lactose (by difference) 2.7%

*Calories*—3.78 per gram, 107 per ounce

*Vitamins*—An excellent source of vitamin A and contains vitamins B and G

#### CARNATION FLOUR

*Manufacturer*—Kell Mill & Elevator Company, Wichita Falls, Texas, a wholly owned subsidiary of General Mills, Inc., Minneapolis

*Description*—Hard-wheat patent flour designed for general baking purposes

*Manufacture*—Hard wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with a mixture of benzoyl peroxide and calcium phosphate (1 part to 50,000 parts of flour) and nitrogen trichloride (15 to 3 Gm per 196 pounds)

*Analysis* (submitted by manufacturer)—Moisture 13.0 to 14.5%, total solids 87.0 to 85.5%, ash 0.38 to 0.42%, fat (ether extraction method) 0.8 to 1.2%, protein (N × 5.7) 10.0 to 12.0%, crude fiber 0.3 to 0.5%, carbohydrates other than crude fiber (by difference) 75.5 to 71.4%

*Calories*—3.4 to 3.5 per gram, 97 to 99 per ounce

#### APPELLA APPLE POWDER (STEARNS)

*Distributor*—Frederick Stearns and Company, Detroit

*Packer*—Appella Corporation, Seattle

*Description*—Powdered dried apple pulp. A blend of products produced from several varieties of apples selected for their high content of pectin and uronic acids, the same as Appella Apple Powder (THE JOURNAL, Nov. 13, 1937, p. 1637)



REPORTS OF OFFICERS

NOTE—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion—Ed

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association

The following annual report of the Secretary is respectfully submitted

MEMBERSHIP

On April 1, 1938, the number of members enrolled was 109,435 as compared with 105,460 on the corresponding date in 1937. This enrolment, larger by several thousand than in any preceding year, is based strictly on official reports submitted to the Secretary of the American Medical Association by the secretaries of the constituent state and territorial medical associations. The state and territorial associations do not follow a uniform rule with respect to the removal of names of members whose dues may be in arrears. In some instances constituent associations have dealt rather leniently with those members whose dues have not been promptly paid, apparently because of the effect on a considerable number of members of the existing economic situation. In some states the membership year strictly corresponds with the fiscal year, while in others the names of members in arrears are continued on official lists for varying periods of time. It is therefore probable that the number of members as here recorded will be reduced to some extent because of the removal of names of members from constituent association lists after April 1.

Increases in membership are shown for thirty-nine of the fifty-four constituent state and territorial associations, while decreases are shown for fourteen. One state association shows the same number of members in 1938 as in 1937. The largest decrease in membership in any constituent association was fifty-four, while losses shown in others varied from one to fifty. The largest increase in membership was shown in New York, with 1,033 new members recorded, and the next largest was in Ohio, with an increase in membership of 738. While it is difficult to determine the exact facts, it is estimated that from 75 to 80 per cent of the total number of eligible physicians engaged in private practice are recorded as members of the American Medical Association.

FELLOWSHIP

The number of Fellows as shown by the official Fellowship roster on April 1, 1938, was 68,478 as compared with 66,296 enrolled on the corresponding date in 1937. This establishes a new Fellowship record. An accompanying table shows the number of counties in each state and territory, the number of component societies as shown by the records in the Secretary's office, the number of members enrolled in the state and territorial associations and the number of Fellows in each state and territory, including commissioned officers of government medical services.

BETTER ORGANIZATION

It is quite evident that a much greater interest is now being taken in the affairs of medical organization than at any previous time since the reorganization of the American Medical Association in 1902. This is clearly shown by the fact that there has been a very decided increase in the number of enrolled members and is even more definitely shown by the tremendous growth of correspondence pouring into the offices of the Association. County medical societies in all parts of the country are carefully studying their organic laws and in a great many instances improving amendments to the constitutions and by laws have been made in the past year. A number of state medical associations have amended their constitutions and by laws or are contemplating amendments, with a view to increased efficiency.

There is a constantly growing tendency in constituent state associations and in the larger component county medical societies toward the employment of full-time secretaries or of full-time executive secretaries, to the end that official matters may be more promptly and efficiently handled. The councils and com-

Organization of Constituent State Associations

	Number of Counties in State	Number of Component Societies in State	Organization of Constituent State Associations										Number of Fellows in State
			Number of Counties Not Organized		No. of Physicians in State 14th Ed. A. M. A. Directory		Number of Members of State Associations						
			1937	1938	1937	1938	1937	1938	1937	1938	1937	1938	
Alabama	67	67			2 105		1 472	1 518					563
Arizona	14	13	1	1	520		316	339					240
Arkansas	78	64	9	9	1 911		1 051	1 068					426
California	38	39	10	10	10 859		6 695	5 906					3 855
Colorado	63	28			1 933		1 139	1 135					755
Connecticut	8	8			2 401		1 543	1 621					1 054
Delaware	3	3			316		198	209					138
Dist. of Columbia					1 970		783	825					648
Florida	67	33	23	21	1 039		1 178	1 231					691
Georgia	161	55	48	44	2 765		1 807	1 708					697
Idaho	44	9			410		257	227					162
Illinois	102	93	6	6	11 672		7 287	7 455					4 760
Indiana	92	83	1	1	4 025		2 058	3 057					1 728
Iowa	99	97			3 146		2 416	2 414					1 423
Kansas	105	68	21	20	2 188		1 529	1 509					1 042
Kentucky	120	114	4	4	2 770		1 712	1 770					785
Louisiana	64	41	19	18	2 135		1 323	1 324					854
Maine	16	15	1	1	966		700	690					393
Maryland	23	22	1	1	2 730		1 370	1 384					907
Massachusetts	14	18			7 263		4 062	6 109					3 100
Michigan	83	54			8 855		3 742	3 987					2 364
Minnesota	67	34	2	1	3 223		2 347	2 510					1 583
Mississippi	82	21	1	1	1 515		955	945					832
Missouri	114	61	12	11	5 496		3 201	3 210					1 950
Montana	56	16	26	25	483		839	567					273
Nebraska	93	50	20	19	1 781		1 069	1 094					717
Nevada	17	5	12	12	149		101	104					66
New Hampshire	10	9			593		455	498					272
New Jersey	21	21			5 117		3 193	3 399					2 494
New Mexico	31	14	10	14	401		236	238					160
New York	62	61	1	1	24 013		15 047	16 080					10 226
North Carolina	100	73	2	19	2 570		1 591	1 616					823
North Dakota	33	13	10	10	526		387	413					255
Ohio	88	87	2	2	8 907		5 361	6 099					3 707
Oklahoma	77	65	7	7	2 350		1 524	1 410					991
Oregon	36	23	3	3	1 344		755	746					476
Pennsylvania	67	60	6	6	12 859		8 568	8 674					6 012
Rhode Island	5	6	1	1	924		458	458					360
South Carolina	46	39	2	2	1 335		814	897					397
South Dakota	9	13	3	2	562		322	320					101
Tennessee	69	60	26	24	2 069		1 669	1 727					826
Texas	244	130	12	15	6 729		4 159	4 200					2 132
Utah	29	9	4	4	543		416	443					251
Vermont	14	10	3	3	503		376	373					214
Virginia	100	47	9	9	2 734		1 725	1 739					968
Washington	39	24	13	13	2 049		1 298	1 401					835
West Virginia	15	30	6	6	1 792		1 104	1 207					658
Wisconsin	71	52			3 271		2 249	2 425					1 513
Wyoming	24	11	10	11	271		143	167					107
Alaska					56		37	56					20
Hawaii	6	4	1	1	378		257	266					190
Isthmian Canal Zone							157	85					20
Philippine Islands (provinces)							2 783	969					49
Puerto Rico (districts)							415	347					74
Foreign							23						151
Totals	141	205	399	397	109 000		10 460	10 942					6 678
Commissioned medical officers													6 525
													6 488

mittees of state medical associations and of a large number of county medical societies are now holding regular meetings at stated intervals and are giving most careful and thorough consideration to matters that properly come before such bodies for official action. In several states the officers and members of official bodies of constituent associations have officially visited

all the county societies within their respective jurisdictions, while in other states such visits have been made to all counties in which meetings could be arranged. The attendance of presidents and other representatives of state medical associations at the Annual Conference of Secretaries of Constituent State Medical Associations held at Association headquarters in Chicago each year is increasing. There are many other indications of increased efficiency on the part of constituent associations and component societies. However, while there is just cause for gratification, it must be regretfully admitted that there is still great need for better organization and increased efficiency in many places.

In some instances interest in the scientific work of county medical societies is apparently lagging to an unfortunate degree. There is good reason to believe that this may be due to the fact that the scientific programs of such societies have become static and have been largely confined to the discussion of a limited range of subjects. In other instances it is quite possible and even probable that the scientific functions of county medical societies have been given over to other groups, even though the official membership of such groups largely corresponds with the membership of the societies themselves. On the other hand the scientific work of a number of the state associations and of a much larger number of county medical societies is being vigorously prosecuted and is generously supported by the general membership. There is a decided tendency toward the development of scientific programs of a nature far different from those that have usually been presented. There seems to be a desire on the part of a great many physicians to have the scientific programs place especial emphasis on the purely clinical aspects of medical practice, and it would seem to be the part of wisdom for the officers and members of program committees to give careful thought to the possibility of making changes that may be necessary to awaken and to hold the continued interest of their members.

#### FIELD WORK

The demand for the services of members of the official and administrative personnel of the Association as speakers before scientific and lay groups has increased to such an extent that it has been altogether impossible to meet it fully, though the number of such appearances was far greater in 1937 than in any preceding year.

Several constituent state medical associations have organized bureaus for the purpose of providing speakers, and these bureaus have received splendid cooperation that has enabled them to meet most of the requests for speakers.

The American Medical Association, a few of the state associations and a considerable number of county medical societies have, with the cooperation of broadcasting companies and individual stations, conducted radio programs that have been heard by many listeners in all parts of the United States. Many of the state and county medical societies, through official committees, have maintained helpful contacts with civic and official organizations interested in public health.

#### PROPOSED AMENDMENTS TO THE CONSTITUTION

At the annual session of the Association held in Atlantic City in 1937, the Judicial Council submitted the following resolution:

WHEREAS The Constitution and the By Laws refer to the election annually of a President and President Elect when in fact only a President Elect is elected and

WHEREAS No provision is made in the Constitution and By Laws for a succession in office in case of death or disability of the President Elect be it

Resolved That article 6 section 2, of the Constitution be amended to read (a) The President Elect shall be elected annually. He shall serve as President Elect until the annual session of the Association next ensuing after his election and shall become President on his installation in the course of that session serving thereafter as President until the next following annual session and the installation of his successor. If the President Elect dies resigns or in the judgment of the Board of Trustees confirmed by the House of Delegates is permanently disqualified for the performance of the duties of his office by any just cause the Vice President shall become President Elect and in due course succeed to the presidency with all of the prerogatives and duties pertaining to that office as fully as if elected to it in the first instance. Provided however that the President Elect who is elected at the annual session of the Association in 1937 shall notwithstanding his election as such for the period of one year only be installed as President in the course of the session in 1938 and continue as such until the session in 1939 and the installation of his successor.

(b) A Vice President a Secretary, a Treasurer and a Speaker and a Vice Speaker of the House of Delegates shall be elected each year for one year and until his successor is elected and installed. Provided however that in event of the death resignation or removal or of permanent disability of the President Elect as determined by the Board of Trustees the Vice President shall succeed to the office of President and in due course to the office of President notwithstanding the fact that he was in the first instance elected as Vice President for one year only.

This resolution received the consideration of the Reference Committee on Amendments to the Constitution and By Laws. The following report was submitted to the House of Delegates by the Reference Committee and was adopted, after which the Speaker of the House ruled that the proposed amendment would be over for one year to receive official consideration at the annual session in 1938.

The resolution to amend the Constitution dealing with the election of the President and President Elect of the Association introduced by Dr. George Edward Follansbee, Chairman Judicial Council has received consideration at the hands of your committee.

Since this is an amendment to the Constitution it will have to be over for a period of one year before final action can be taken by this House.

The purport of the amendment to the present Constitution is to make better provision for succession in office in case of death or of disability of the President Elect. In giving consideration to this important matter your reference committee feels that this body might take under advisement the possibility of providing by constitutional amendment a Vice President Elect to be included in the general officers of the Association. Such provision is not made in the present Constitution nor does the proposed amendment make such provision. Such provision would necessitate the amendment of Section 1 of Article VI of the Constitution by including a Vice President Elect as one of the general officers of the Association as well as making certain alterations in the phraseology of the proposed amendment.

No resolutions intended for presentation to the House of Delegates have been sent to the Secretary's office up to the time of the preparation of this report.

Most grateful acknowledgment is here made of the helpful kindnesses that have been extended to the Secretary by members of official bodies of the Association, including the House of Delegates, by secretaries and other officers of constituent state and territorial associations and of component county societies, and by a large number of the individual members of the Association.

Respectfully submitted

OLIN WEST, Secretary

#### REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association

##### Death of Dr. George H. Simmons

Dr. George H. Simmons, Editor and General Manager Emeritus, died in Chicago on Sept. 1, 1937. The following resolution, in which the great service rendered by Dr. Simmons to American medicine is set forth, was officially adopted by the Board of Trustees and spread on its minutes:

WHEREAS Dr. George H. Simmons rendered distinguished service to the medical profession and to the American Medical Association from 1893 when he became Secretary and Editor through 1924 when he retired holding the positions of Editor and General Manager, and

WHEREAS During this period of twenty five years his wise leadership, his courage, his progressiveness and his initiative advanced the interests and the status of the Association to heights never before reached by any medical organization, and

WHEREAS His work for the American Medical Association was characterized by intelligence, unselfishness, honesty and righteousness, and his interest endured to the very end of his days, and

WHEREAS The Board of Trustees through its intimate contact with Dr. George H. Simmons in all of these works is cognizant of the service to which he gave of himself freely for the good of all, therefore be it

Resolved That this Board of Trustees spread upon its minutes a recognition of his accomplishment and that it tender to his relatives a suitable copy of these resolutions and its sincere sympathy in their sorrow at his passing.

##### The General Work of the Association

The year covered in this report of the Board of Trustees has been characterized by a very notable expansion in the activities of the various councils, bureaus and departments of the Association until, at times, available facilities have been seriously strained. A constantly growing interest on the part of the general membership in changing social conditions,

increased efficiency of medical organization in counties and states throughout the nation, a more active and intelligent interest on the part of the public in matters pertaining to public health and medical service, legislative activities in the states and in the federal government the consideration of important questions pertaining to medical education, hospital operations and the extension of public health programs, greater financial and administrative participation on the part of the federal government in public health affairs in states and in communities, proposals for the development of medical and hospital service plans for the benefit of the members of low income groups and actual operation of such plans and a notable increase in the number of members of the Association together with many other important factors have brought into the headquarters offices a veritable flood of inquiries and demands for information and service. An earnest effort has been made to meet such demands as fully and as helpfully as possible.

### Business Operations

The official Report of the Treasurer and the official Report of the Auditors are submitted to the House of Delegates as a part of this report of the Board of Trustees.

The gross earnings for the year ended Dec 31, 1937, amounted to \$1,654,203.74 as compared with \$1,547,218.23 in 1936. Operating expenses were \$982,830.10 as compared with \$909,417.95 in the preceding year. Association expenses including expenditures incident to the operations of councils, bureaus and departments amounted to \$431,635.63 as compared with \$411,028.93 in 1936, while miscellaneous expenses for the year 1937 including insurance and taxes, building expenses and depreciation, fuel, legal services and the cost of sundry publications amounted to \$218,601.19 as compared with \$209,382.37 in 1936. The net income for the year was \$122,242.92, of which sum \$83,563.74 represented income from investments, so that the actual net operating income was \$38,679.18.

While only a few of the bonds owned by the Association have defaulted in the payment of interest, there has been a rather serious depreciation in the market value of some of the securities held. The Board of Trustees, the Treasurer and the General Manager of the Association have sought the best available advice with respect to investment of the Association's funds. In accordance with the situation that generally prevails, the average interest return on invested funds has been decreased because of the substitution of securities bearing lower interest rates than those which formerly obtained.

The payment of wages and salaries, exclusive of those involved in the operation of councils and bureaus amounted to \$460,182.01 in 1937 as against \$443,693.17 in 1936. Increased labor costs in effect during the latter part of the year accounted for most of the increase in this item, and notification has already been received to the effect that these costs will be further increased during the current year. The cost of paper in 1937 was \$241,663.85 as compared with \$208,922.37 in the preceding year. These costs would have been considerably larger except for the fact that the fullest possible advantage was taken of the opportunity to purchase paper stock before material increases in the market price went into effect. The sum of \$97,274.89 was expended for postage in 1937 as against \$92,123.08 in 1936.

Fellowship dues and subscriptions paid in 1937 amounted to \$670,170.31 as compared with \$638,243.18 in 1936, the increase being due principally, to increased circulation of THE JOURNAL and to a rather notable increase in the number of Fellows enrolled. Total receipts from the sale of advertising space in Association publications were \$841,042.57 as against \$780,299.01 in 1936.

The number of employees at the time of the preparation of this report was 616.

The purchase of some new machinery and equipment contemplated when the last annual report of the Board of Trustees was submitted to the House of Delegates was deferred in part for the reason that some of the machinery that must be purchased will have to be newly constructed and in part because some of the older machinery which it had been intended to discard was repaired or partially rebuilt so as to extend its usefulness. It will be necessary to install some new machinery in the printing department during the current year.

Increased activities of the councils, bureaus and departments of the Association have required the purchase of a considerable amount of new office material.

In the Report of the Treasurer and in the Report of the Auditors submitted herewith will be found more fully itemized statements of income and expenditure.

### Summary

Gross earnings and miscellaneous income were larger in 1937 than 1936, while operating and miscellaneous expenses were also considerably larger. Income from investments was slightly larger than in 1936. The net income for the year was \$122,242.92, of which amount \$83,563.74 represented interest on investments and \$7,453.20 represented miscellaneous income.

### The Association Building

The experience of the past year has fully justified the action taken by the Board of Trustees whereby the entire building was remodeled and two new stories and an assembly hall were added. Better working conditions have been afforded in all departments, and it has been possible by reason of building expansion to bring closer together councils and bureaus whose work is closely correlated and thereby to avoid unnecessary duplication of effort and to increase efficiency.

Many commendatory expressions have been received concerning the beauty of the Association's building as it now stands. The Board of Trustees would urge the members of the House of Delegates and the members and Fellows of the Association who may find opportunity to do so to visit the headquarters offices to see at first hand the nature and the scope of the work that is being prosecuted there.

### The Journal of the American Medical Association

The place held by THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in the field of medical periodicals is now so well established that it is unnecessary to offer comment on this point. Nevertheless, the publication has not been static. It has developed a new series of articles on the relationship of the pharmacopeia and the physician. It has continued its campaigns against mortality from typhoid and from diphtheria and has reestablished the campaign against Fourth of July accidents.

The publication formerly called the BULLETIN OF THE AMERICAN MEDICAL ASSOCIATION is now fully incorporated in THE JOURNAL as the Organization Section. Here special attention is given to problems of organization, to medical economics, to reports of activities of various councils, bureaus and departments, and to the work of the Woman's Auxiliary. The value of this week by week circulation of important information in the field of economics and of organization for the maintenance of interest of the individual physician cannot be overestimated. Because of the significance of this material, the Board of Trustees would recommend that it be placed in the center of THE JOURNAL and incorporated as a regular feature on medical economics.

Attention should be called in this connection to the arrangements that have been made whereby officials of the British Medical Association contribute regularly important statements as to medical economic conditions in Great Britain and as to the manner in which the British Medical Association is attempting to solve its problems.

Especially noteworthy among the features of 1937 was the exposure of the cause for the deaths of more than seventy persons who had taken an elixir of sulfanilamide. The prompt exposure of new methods of treatment of cancer not fully established and the regular reports of the Council on Pharmacy and Chemistry, the Council on Foods and the Council on Physical Therapy serve to protect both the public and the medical profession against unestablished and even fraudulent methods of treatment as well as to keep the medical profession abreast of what has been fully established in these fields.

During the year the series of articles on The Therapy of the Cook County Hospital has been continued so that even

tually the complete series will be available in book form. Special issues of THE JOURNAL have been devoted to hospitals, to medical education and to the state licensing boards as well as to the annual session. Each of these special issues has been the means of extending widely the work carried on by the Association for the raising of standards of medical education.

In the campaign of the United States Public Health Service for the control of pneumonia, THE JOURNAL cooperated by conducting a survey of hospitals in the United States as to the facilities for the typing of pneumococci and by prompt publication of the available material for the education of the medical profession in modern methods of diagnosis and treatment.

A feature of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION not duplicated in any other medical publication in the world is the department of Queries and Minor Notes. Each year some 5,000 questions are submitted to this depart-

received are referred for reply to physicians recognized as authorities in the fields concerned. Many of the questions are answered from available medical literature, some of them answers already published and many by personal communication, usually supplemented with material from the library of the American Medical Association. Approximately 40 per cent of the questions come from physicians in communities where

TABLE 2—Physicians Receiving The Journal\*

State	Number Receiving Journal	Physicians to State A. M. A. Directory	Approximate Percentage Receiving Journal
Alabama	760	2,100	36
Arizona	344	520	66
Arkansas	581	1,011	58
California	6,201	10,809	57
Colorado	967	1,933	50
Connecticut	1,574	2,401	66
Delaware	209	316	66
District of Columbia	1,131	1,909	59
Florida	1,014	1,609	63
Georgia	1,046	2,760	38
Idaho	200	410	49
Illinois	7,176	11,612	61
Indiana	2,213	4,095	54
Iowa	1,640	3,140	52
Kansas	1,162	2,188	53
Kentucky	1,070	2,700	39
Louisiana	619	2,130	29
Maine	515	966	53
Maryland	1,466	2,700	54
Massachusetts	4,450	7,963	56
Michigan	3,470	5,860	59
Minnesota	1,976	3,283	60
Mississippi	411	1,515	27
Missouri	2,603	5,406	48
Montana	281	483	58
Nebraska	921	1,781	52
Nevada	90	149	60
New Hampshire	840	693	121
New Jersey	3,760	5,177	73
New Mexico	234	401	58
New York	10,220	24,013	43
North Carolina	1,249	2,570	49
North Dakota	283	596	47
Ohio	4,980	9,907	50
Oklahoma	601	2,380	25
Oregon	706	1,344	52
Pennsylvania	8,145	12,889	63
Rhode Island	530	924	57
South Carolina	574	1,330	43
South Dakota	270	562	48
Tennessee	1,160	2,039	57
Texas	2,602	6,729	39
Utah	310	543	57
Vermont	284	503	56
Virginia	1,391	2,704	51
Washington	1,110	2,040	54
West Virginia	879	1,789	49
Wisconsin	2,021	3,037	67
Wyoming	153	261	59

\* This table gives the number of physicians (based on the Fourteenth Edition of the American Medical Directory) in the United States the number receiving THE JOURNAL and the approximate percentage in each state. Copies to physicians in the United States Army and Navy are not included.

adequate library facilities are available, the remainder from communities without opportunities for such consultation.

The accompanying table 1 indicates the number of Fellows and subscribers on the mailing list of THE JOURNAL, by states on Jan. 1, 1938, and the gain or loss. Table 2 shows the percentage of physicians receiving THE JOURNAL in each state the figures being based on the Fourteenth Edition of the American Medical Directory.

The circulation of THE JOURNAL on Jan. 1, 1938, was 97,710 as compared with 94,180 Jan. 1, 1937. The net paid circulation Jan. 1, 1938, was 96,812.

Summary

Continued effort has been made to increase the usefulness of The Journal. New features include the development of a series of articles on the relationship of the pharmacopeia and the physician. Campaigns against mortality from typhoid and from diphtheria and against Fourth of July accidents have been reestablished.

The publication formerly known as the Bulletin of the American Medical Association is now fully incorporated in The Journal as the Organization Section. In this section special attention is given to problems of organization, to medical economics, and to the activities of various councils, bureaus and departments and the Woman's Auxiliary.

TABLE 1—Approximate Count of Fellows and Subscribers on The Journal Mailing List by States, Jan. 1, 1938, Also Gain or Loss in Each State

State	Fellows	Subscribers	Totals	Gain	Loss
Alabama	511	244	755	20	
Arizona	217	127	344	15	
Arkansas	389	192	581	26	
California	3,509	2,692	6,201	274	
Colorado	665	302	967	18	
Connecticut	1,005	566	1,574	47	
Delaware	127	82	209	13	
District of Columbia	616	515	1,131	20	
Florida	670	344	1,014	30	
Georgia	628	418	1,046	82	
Idaho	136	114	250	3	
Illinois	4,333	2,843	7,176	221	
Indiana	1,534	629	2,213	69	
Iowa	1,247	402	1,640	18	
Kansas	908	264	1,162	74	
Kentucky	714	356	1,070	50	
Louisiana	663	316	979	66	
Maine	372	143	515	6	
Maryland	845	621	1,466	21	
Massachusetts	2,827	1,623	4,450	194	
Michigan	2,196	1,283	3,479	130	
Minnesota	1,373	603	1,976	71	
Mississippi	286	120	411	23	
Missouri	1,779	824	2,603	38	
Montana	190	91	281	3	
Nebraska	631	290	921	31	
Nevada	61	29	90		
New Hampshire	269	90	349	11	
New Jersey	2,363	1,403	3,766	200	
New Mexico	144	90	234	1	
New York	9,012	5,687	15,229	603	
North Carolina	742	497	1,239	67	
North Dakota	203	80	283	4	
Ohio	3,406	1,583	4,989	120	
Oklahoma	680	266	946	33	
Oregon	420	286	706	17	
Pennsylvania	5,664	2,481	8,145	306	
Rhode Island	341	194	535	2	
South Carolina	339	235	574	41	
South Dakota	178	101	279	6	
Tennessee	742	418	1,160	50	
Texas	1,839	813	2,652	97	
Utah	222	97	319	6	
Vermont	203	81	284	9	
Virginia	915	406	1,321	39	
Washington	730	384	1,110	28	
West Virginia	611	268	879	45	
Wisconsin	1,376	645	2,021	53	
Wyoming	90	58	148	2	
U. S. Army		171	171		
U. S. Navy		241	241		
Alaska	18	19	37	2	
Canada	0	843	843	1	
Cuba	3	100	103	22	
Hawaii	104	80	184	15	
Mexico	10	112	122	20	
Panama	16	38	54	6	
Philippine Islands	45	18	63	16	
Puerto Rico	62	73	135	30	
Virgin Islands	2	5	7	2	
Foreign	110	2,511	2,621	247	
Advertisers Agents			529	25	
Exchanges			308		
Complimentaries			101	2	
Total on mailing list			97,710	3,723	1,000

ment by physicians who wish information regarding the diagnosis, treatment or handling of individual cases, an official opinion on the new drugs and new procedures, information regarding industrial poisons, discussions of disease, advice regarding new laboratory methods or specific references to the available literature. About 20 per cent of the questions

Arrangements have been made whereby officials of the British Medical Association contribute regularly statements concerning medical economic conditions in Great Britain and the manner in which the British Medical Association is attempting to deal with such matters.

The prompt publication in *The Journal* of all the facts concerning the disastrous results of the use of the product known as Elixir of Sulfanilamide, the prompt expose of newly promoted methods of treatment of cancer not fully established, and regular reports of the Council on Pharmacy and Chemistry, the Council on Foods and the Council on Physical Therapy have attracted wide attention and have served to protect the public and the medical profession against unestablished and even fraudulent methods of treatment.

The series of articles on the Therapy of the Cook County Hospital has been continued, and these articles will eventually be made available in book form.

Special issues of *The Journal* have been devoted to medical education, to hospitals and to the activities of state licensing boards. Each of these special issues has been helpful in extending the work carried on by the Association for the improvement of standards of medical education.

The *Journal* has cooperated with the United States Public Health Service in the campaign to establish better control over pneumonia. A survey was made of the facilities available in the hospitals of the United States for the typing of pneumococci, and available material concerning modern methods of diagnosis and treatment of pneumonia has been promptly published.

An important feature of *The Journal* is the department devoted to Queries and Minor Notes. Approximately 5,000 questions are submitted by physicians each year. These questions cover a wide range of subjects. While most of them are answered by members of the official staff of the Association, about 20 per cent are referred for reply to physicians recognized as authorities in the fields concerned. Approximately 40 per cent of such inquiries come from physicians in communities where adequate library facilities are available, and the remainder from physicians in communities without opportunities for such consultation.

### Special Journals

The eight special periodicals published by the Association have been maintained at their usual high standards of previous years, both scientifically and mechanically. The number of pages of reading matter varied but slightly over the preceding year, but there was an increase of fifty in the number of pages of advertising carried. Five of the journals showed an increase of seventy-two pages of advertising matter, while three showed a decrease of twenty-two pages.

The January 1937 issue of the *ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY* was dedicated to Dr. William Allen Pusey, who retired from the Editorial Board at the close of 1936 after having served as Editor in Chief for seventeen years. The articles in this issue were contributed by physicians and laymen who had been associated with Dr. Pusey in various capacities.

The April 1937 issue of the *ARCHIVES OF NEUROLOGY AND PSYCHIATRY* was dedicated to Dr. Adolf Meyer in honor of his seventieth birthday and as an expression of appreciation for his service to psychiatry and to American medicine. This issue contained 272 pages of articles contributed by Dr. Meyer's former pupils. He has served as a member of the Editorial Board of the *ARCHIVES OF NEUROLOGY AND PSYCHIATRY* for approximately ten years.

A supplement to the January 1937 issue of the *AMERICAN JOURNAL OF DISEASES OF CHILDREN* was published and contained two articles on basal metabolism comprising 156 pages.

The Board of Trustees has carefully considered requests that the Association undertake the publication of several independent journals devoted to special fields of medicine but has not been able to comply with these requests. The Board of

Trustees has considered it inadvisable to permit any of the periodicals published by the Association to be known as the official organ of any specialistic medical society. Requests for a reconsideration of this decision have been received, but up to this time no evidence has been submitted to convince the Board of Trustees that its official attitude should be changed.

The cost of publication of the special scientific journals over income received was \$25,958.37. Only two of the publications in this group produced income larger than production costs. The loss thus sustained was less by the sum of \$7,862.93 than in 1936.

While it seems probable that it never will be possible to publish the special journals without financial loss, the Board of Trustees has believed, and apparently has been supported by the House of Delegates in this belief, that these publications constitute a distinct contribution to scientific medical literature and that the cost involved is fully justified by that fact. However, there is a limit beyond which, in the opinion of the Board of Trustees, it would not be wise to go in the continued absorption of yearly losses. Some of the special journals have encountered competition because of new publications fostered by special groups and published by commercial organizations. In some instances these competing periodicals, though they have been made official organs of special groups whose members are members and Fellows of the American Medical Association, have accepted advertising matter of a kind that is not acceptable for the Association's publications.

All the special journals had a larger circulation in 1937 than in 1936, but in no instance was the increase as large as it should be in view of the excellence of scientific material presented in these publications.

### Summary

The special journals of the Association have been maintained at their usual high standards. While the total circulation of this group of periodicals was larger in 1937 than in the previous year, the increase was not as large as would be fully justified by the quality of the scientific material presented.

New publications in the same fields as those covered by some of the special journals have been established within the last few years as the official organs of special societies.

The loss incurred through the publication of the special journals in 1937 was \$25,958.37, as compared with a loss of \$33,821.30 in 1936. Only two of the journals produced incomes larger than production costs.

### Library and Quarterly Cumulative Index Medicus

Throughout the country, the Library of the American Medical Association has come to be recognized as one of its greatest assets and as one of the chief facilities for rendering to the medical profession a service of the utmost importance in relationship to graduate education and the practical application of medical care. The services of the Library include the compilation and editing of the *QUARTERLY CUMULATIVE INDEX MEDICUS*, the package library service, the periodical loan service, the indexing of *THE JOURNAL* and the usual services rendered by a reference library.

The work of the *QUARTERLY CUMULATIVE INDEX MEDICUS*, which is everywhere recognized as one of the greatest contributions of the American Medical Association to medical research and the advancement of medical science, has now become systematized so that it is carried on regularly in a routine manner. The circulation of the *QUARTERLY CUMULATIVE INDEX MEDICUS* was approximately 6 per cent larger in 1937 than in the preceding year but the total income from sales of this publication is far below the amount required to equal the costs of preparation and publication. In 1937 expenditures exceeded income received through subscriptions to the *QUARTERLY CUMULATIVE INDEX MEDICUS* by the sum of \$42,616.32, slightly more than in 1936 but less than the losses shown in 1934 and 1935. The production of the *QUARTERLY CUMULATIVE INDEX MEDICUS* is an essential activity of the Association and deserves far more liberal support than it is receiving from individual physicians and medical institutions.



More than 1,400 periodicals are regularly received in the Library and are available for indexing and for reference purposes. As a result of the war in Spain, practically no scientific Spanish periodicals have been received during 1937, and those are omitted from the index for that year. As a result of significant changes in the periodical literature of Central Europe, scientific medical material available for indexing is less in amount and apparently of a different quality.

Because of the popularity of the package library service, the rule requiring written requests for material has been strictly enforced. All requests are handled in order of receipt, regardless of whether the physician is a resident of Chicago or of Seattle. The number of packages requested is approximately the same as in previous years. Altogether, 3,014 packages were distributed during 1937. The subjects called for indicate the trend of medical progress and scientific interest. The leading subjects include dementia praecox, alcohol and alcoholism, arthritis, pneumonia, sulfanilamide, undulant fever and the progress of medicine.

The periodical loan service continues to be exceedingly popular, since it makes available to practitioners everywhere the original reference material to which attention may have been called by the indexes and the abstracts. Members and subscribers requested 10,759 periodicals during 1937. Moreover, the Library answered about 6,200 general reference questions and telephone inquiries during the year. Notwithstanding the fact that the facilities for the use of the Library by visitors are not extensive, 1,262 physicians called in person during 1937 to obtain the services of this department.

The Library also conducts a subsidiary department devoted to the circulation of reading material for employees of the Association. During the year, 5,220 books were borrowed by employees, with an average daily circulation of twenty-one books.

#### Summary

The services of the Association's Library include the compilation and editing of the Quarterly Cumulative Index Medicus, the package library service, the periodical loan service, indexing of The Journal and the usual services rendered by a reference library.

More than 1,400 periodicals are regularly received in the Library and are available for indexing and for reference purposes. Because of the war in Spain, very few Spanish periodicals were received during the last year and scientific medical material available for reference and for indexing from Central Europe has been less in amount than heretofore and apparently of a different quality.

The Quarterly Cumulative Index Medicus, recognized as one of the greatest contributions of the Association to the advancement of medical science, had wider circulation in 1937 than in the previous year, but the cost of publication exceeded income received from subscriptions by the sum of \$42,616.32, slightly more than in 1936 but less than in 1934 and 1935. This publication represents an essential activity of the Association and deserves far more liberal support than it now receives.

More than 3,000 library packages were distributed during the year and nearly 11,000 periodicals were lent to physicians through the periodical loan service. The Library answered more than 6,000 general reference questions, and though the facilities for the use of the Library by visitors are not extensive, more than 1,200 physicians called in person during the year to obtain the services of this department. Through the Employees' Library 5,220 books were made available for the use of the working personnel of the Association.

#### Standard Classified Nomenclature of Disease

During 1937, by action of the Board of Trustees the editorial department of the American Medical Association took over the publication and the correspondence incident thereto of the Standard Classified Nomenclature of Disease—a cooperative effort formerly subsidized by the Commonwealth Fund. This editorial function has been placed under an assistant editor

Dr Edwin P. Jordan. The demand for the work since it has been taken over by the Association was so great that it was necessary to reprint promptly the available edition of this work, which is gradually being adopted by more and more hospitals as a means of preparing standard indexes of case records. The recommendation has been received for publication at some future date of a supplement to this standard nomenclature containing a standard nomenclature for surgical operations. It has also been proposed to undertake cooperative effort with the Bureau of Census so as to secure some uniformity of the nomenclature of disease with the international list of causes of death. The recommendation is also made to the Board of Trustees and to the House of Delegates for a conference to be held in the headquarters office of the American Medical Association in 1940 to which all the scientific societies which cooperated in the development of the present nomenclature will be invited to send representatives preliminary to the publication of a new edition of this work.

#### Hygeia

The circulation of *HYGEIA*, the Health Magazine, published by the American Medical Association, reached during 1937 the highest figure in its history, after fifteen years of continuous publication. A comparison of the present publication with the numbers issued during 1923 indicates the great progress that has been made in the development of this periodical from the point of view of its typography, illustrations and the quality of the material contained. More and more the special appeal of *HYGEIA* as a periodical useful in the schools has become apparent. Moreover, a special section has been developed to correlate the radio program of the American Medical Association (now directed primarily to the schools) with the text material available through *HYGEIA*. Of particular importance as new features in this publication are the series of articles on vision and light, on quackery and its methods, on parasites that affect human beings, and on hygiene—both personal and public. Another feature introduced during 1937 and now developing much acclaim is the teaching of health through pictures, each issue of *HYGEIA* now containing from four to six pages of pictorial education regarding the human body in health and in disease. The questions and answers regularly published in *HYGEIA* and the communications received from its readers are evidence of the place that it has come to occupy in its field.

#### Summary

While there was a gain in the average monthly circulation of *Hygeia* in 1937, publication costs exceeded income by the sum of \$31,004.90, largely because of the difficulties encountered in maintaining circulation. The advertising income in 1937 was larger by the sum of \$4,629.29 than in 1936.

Improvements have been made in typography and illustrations as well as in the quality of reading material.

A section has been developed to correlate the Association's radio program with the text of *Hygeia*.

#### Cooperative Medical Advertising Bureau

Commissions earned by the Cooperative Medical Advertising Bureau which represents thirty-three of the official publications of the constituent state medical associations, amounted to \$30,681.91 in 1937. Of this amount the sum of \$15,099 was remitted to the state medical journals. Advertising contracts secured through the Bureau for the state journals in 1937 amounted to \$156,705.47.

Mr. E. W. Mattson, after having served most efficiently as director of this Bureau for twenty-four years, retired from active service on Dec. 31, 1937.

#### Summary

The earnings of the Cooperative Medical Advertising Bureau in 1937 were \$30,681.91. Of this amount, \$15,099, almost 50 per cent of the total earnings, was remitted to the state journals. The amount involved in advertising contracts secured by the Bureau was \$156,705.47.

### Mailing and Order Department

The total number of orders passing through the Order Department in 1937 was 68,282, and the total number of units distributed as a result of these orders was 474,483. The greatest demand was for material issued through the Bureau of Health and Public Instruction, and the next greatest demand during the year was for material prepared by the Bureau of Medical Economics.

In handling the orders referred to nearly 6,000 mail bags were used with a total weight of 174 tons.

Slightly less than 400,000 pieces of first class mail and more than 1,000,000 pieces of third class mail passed through the Mailing Department in 1937.

### The Motion Picture on Syphilis

Through a cooperative effort of the American Medical Association with the United States Public Health Service, a seven reel talking motion picture on "Syphilis" was made available during 1937. In the development of this picture to be used in graduate education regarding syphilis, the following physicians participated:

Executive Committee: Drs. Morris Fishbein, Austin A. Hayden and Olin West.

Participating in the picture: Drs. Charles Gordon Heyd, Thomas Parran, John H. Stokes, Harold N. Cole, Paul O. Leary, James R. McCord, Philip C. Jeans, Joseph E. Moore and R. A. Vonderlehr.

During the year the picture was circulated widely among county and state medical societies and in medical schools. Extra copies were purchased by the United States Public Health Service and by health departments of several states. The success of this film is an indication of the possibilities in this method of graduate education for the future.

The text of the film has been reproduced in pamphlet form as a means of extending the information provided in the film itself.

### The Conference on Publicity for Scientific Medicine

By direction of the Board of Trustees a conference was held during 1937 in the headquarters office of the American Medical Association on the provision of adequate publicity for medical science. This conference was attended by representatives of the leading press services, newspapers and periodicals of the United States as well as by writers of syndicated columns on health. This interchange of opinions and experiences served to bring out some of the difficulties inherent in the securing of adequate publicity for medical science as a means of educating the public regarding progress in medicine and the motives of the medical profession. The complete report was published in the Organization Section of *THE JOURNAL*. Its reception by the medical profession indicated so much interest that the Board of Trustees plans a similar conference in the future.

### Books Published by the American Medical Association

During 1937 there became available in addition to the publications of the various councils the eleventh edition of the *Handbook of Therapy*, published by the American Medical Association.

There also appeared in book form a translation into German of the volume on *Glandular Physiology and Therapy*.

The Editorial Department has also been active in developing a book on *Medical Writing* and a new edition of *The Technique of Medication*.

### Retirement Fund

From time to time it has become necessary for members of the Association's administrative personnel to retire from active duty after years of devoted and efficient service and for the Association to provide retirement pay for some of those who have thus been placed on the inactive personnel list. Believing that it is the duty of the Association to make provision for the comfort and well being of those who have rendered long and

valuable service to the Association and who have not been able to provide a competency for their use in their declining years, the Board of Trustees has taken official action whereby the sum of \$25,000 will be set aside each year until an adequate amount has been accumulated, the fund thus established to be known as the Retirement Fund and to be used for the benefit of employees who because of increasing age or impaired health have found it necessary to relinquish active official duties.

### Medical Patents

The Board of Trustees finds that medical patents are now held and administered by universities, special committees and foundations and by individual physicians, that patents held under such conditions may sometimes be used to influence the progress and direction of medical research, that the Principles of Medical Ethics of the American Medical Association prevent any individual physician from deriving any income from medical discoveries, whereas technicians or laymen associated with the same discovery may profit directly, and that there is need for some standardizing or coordinating agency in this field.

The Board of Trustees therefore recommends that the American Medical Association develop as complete a list as possible of medical patents and the holders thereof, and that these holders be invited to send representatives to a national conference to be held in the headquarters of the American Medical Association for discussion of this topic, with a view to deriving therefrom recommendations leading toward suitable practice in the administration and control of medical patents.

### Proposed Change in Name of Bureau of Health and Public Instruction

The Board of Trustees recommends that the name of the Bureau of Health and Public Instruction be changed to "Bureau of Health Education." The present name of the Bureau is unnecessarily long, and it is believed that the shorter name suggested by the Board of Trustees fully comprehends the Bureau's functions.

In order that the proposed change may be properly effected, it will be necessary that section 2 of chapter VI of the By-Laws of the Association be amended.

### The Division of Drugs, Foods and Physical Therapy

The administrative Division of Drugs, Foods and Physical Therapy consists of the Council on Pharmacy and Chemistry, the Council on Foods, the Council on Physical Therapy and the A. M. A. Chemical Laboratory. In addition the administrative work of the Advisory Committee on Advertising of Cosmetics and Soaps is carried on in this division. A number of complex problems covering overlapping fields of the three councils have been considered by the Cooperative Committee on Policy, Rules and Procedure, representing all the groups of the division. This committee has expedited the handling of many questions and has removed the necessity of placing on a single council the burden of responsibility for interlocking questions. The creation of the division of Drugs, Foods and Physical Therapy has resulted in greater efficiency in carrying on routine activities, in obviating inconsistencies and in better correlation.

### Council on Pharmacy and Chemistry

Each year the Council on Pharmacy and Chemistry has reported increasing interest on the part of the medical profession and increasing work on its own part. In 1937 a new high peak was reached in both particulars. The report of the Council's investigation of catgut sutures attracted widespread attention and apparently was instrumental in bringing about the introduction in Congress of a bill providing that the National Institute of Health formerly the Hygienic Laboratory should undertake the control and regulation of catgut sutures to insure sterility and high quality of such material. The Chair of

Sulfanilamide-Massengill episode, discussed elsewhere under the heading of the A M A Chemical Laboratory, also had great effect in causing greater interest in the Council's activities and in increasing its work. The reports on both the catgut sutures and the Elvair of Sulfanilamide incident have quickened the profession into a greater alertness to the possible dangers in the use of drug products that have been placed on the market without proper scientific investigation and without the establishment of necessary standards. So many communications have been received from physicians inquiring whether or not certain products were Council accepted or whether certain firms cooperated with the Council that it has not been possible to make prompt replies. Many institutions and individual physicians have removed from their shelves nonaccepted products. In the last three months of 1937 more approaches were made by firms with a view of obtaining Council acceptance than at any other like period. There is no doubt that more producers will endeavor to comply with the rules of the Council, in view of the increased support of the Council's work by physicians. It must be fully recognized that there are some manufacturers of products offered for therapeutic purposes that do not deserve the support of the profession. Whether or not such houses can exist under the increasingly intensive scrutiny of the medical profession waits to be seen. Certain it is that, as long as some physicians will support the crude type of products, the proprietary propaganda and the endeavor to foment commercial domination of therapeutics on the medical profession, just so long will these houses endeavor to avoid marketing their products honestly. It is gratifying, however, to note the number of new products or brands which have been submitted to the Council. One firm alone has signified its intention of submitting ninety-two products—practically all of an acceptable character—for consideration by the Council within the next few months. The difficult problem at present is how the executive force at headquarters can take care of increasing demands on the Council, not only in passing on drugs but in requests for advice and information from the physicians in active practice.

Representatives of a few firms whose method of doing business cannot receive recognition by the Council have in some instances made untrue representations that every doctor should challenge. These statements are to the effect that the Council charges a fee for examining drugs or that it "costs too much" to get a product passed by the Council or that it is necessary to take out so much advertising in *THE JOURNAL* before the Council will accept a product. Of course such statements are completely false. It has been reiterated again and again that since its inception the Council has never accepted, or permitted to be accepted, a cent of remuneration in any form for the consideration of products. The cost of the Council on Pharmacy and Chemistry, as well as that of the other councils, is borne entirely by appropriation made by the Board of Trustees of the American Medical Association. The Council is not influenced in the slightest by any proffer of advertising patronage and, if it knows of such a proffer, the firm is notified that it will have no effect on the Council's consideration. All members of the Council, with the exception of the Secretary, serve without remuneration. They give of their time willingly and unstintingly. As an expression of appreciation of their efforts, it is asked that the profession evaluate critically the Council's conclusions and lend support to its work in rationalizing therapeutics. If any unfair charges against the Council reach the ears of members of the profession they should demand immediately that such charges be either substantiated or retracted.

#### PUBLICATIONS OF THE COUNCIL

*New and Nonofficial Remedies*—The 1937 edition differed from previous editions because of the request of some manufacturers to have official products which have been granted the seal of acceptance listed on the same pages with proprietary accepted brands. Heretofore accepted brands of official products were merely listed in that department of New and Nonofficial Remedies entitled 'List of Articles and Brands Accepted by the Council but Not Described'. Two supplements to New and Nonofficial Remedies were issued as usual, one on August 1 and one on November 1, and sent to all who had purchased copies of the book. Frequently it is noted

that physicians do not order the book annually but fall back on an old edition. This may lead to errors, because a product which stood accepted in 1930 may have been superseded by more valuable products developed since that date, further evidence might have indicated that claims made for a product should be restricted or that the tests and standards should be modified. New and Nonofficial Remedies is a current publication, the content of which is being constantly changed to keep in step with the rapid advancement of drug therapy. The number of copies of New and Nonofficial Remedies in 1937 was 5,003. The number should be much greater. In addition, 6,200 paper-bound copies were distributed, copies being sent to one class in each recognized medical school.

*Epitome of the U S Pharmacopeia and National Formulary*—The new Epitome was printed early in 1936. However the Pharmacopeia and the National Formulary adopted a policy of issuing interim supplements and that made it necessary to revise the Epitome in 1937. The demand for the book has been such that further printings must be made in 1938. The number of copies sold in 1937 totaled 8,130.

*Useful Drugs*—This little book containing a selected list of drugs has always enjoyed wide acceptance. One reason for this is that it is used in many medical schools, the other is that the book is never out of date. Early in 1937 a thorough revision was made of the 1936 edition. At the close of 1937 the manuscript had almost been completed for an entirely new edition, which will be off the press in the spring of 1938. This is the first edition of Useful Drugs in which the English name precedes the Latin name of the drug. The book is issued both in the regular pocket size and in an interleaved edition to meet the demand of teachers who desire their students to make notes alongside the text. The book not only is of service to teachers and students but is widely used as a reference guide by practicing physicians. The number of copies of Useful Drugs sold in 1937 was 6,495.

*Glandular Physiology and Therapy*—The book *Glandular Physiology and Therapy* was issued at the close of 1933. Although there has not been opportunity for the book to be revised since then, the sale still continues, 2,065 copies were purchased in 1937.

*A M A Interns' Manual*—This book will be a radical revision of the publication previously known as *Hospital Practice for Interns*. Much has been done on the text throughout the year 1937 and the manuscript was sent to the printer the first part of January 1938. It is believed that the book will receive wide recognition not only by interns but by physicians in general. It will contain official statements from the Council on Medical Education and Hospitals concerning rules for interns, an epitomized statement concerning physical therapy issued by the Council on Physical Therapy, a discussion of foods and nutrition as applied to the care of the sick, issued under the auspices of the Council on Foods, and a description of acceptable types of drugs, their dosages and indications which come within the purview of the Council on Pharmacy and Chemistry. In addition, the Council has authorized the inclusion of tables and other data that may be of aid in diagnosis.

#### REPORTS OF THE COUNCIL

The Council has continued to advise the medical profession concerning the status of new drugs and an increasing number of reports are appearing each year discussing the status of various substances.

A filtrate used in the treatment of gonorrhea having been the subject of two preliminary reports, was finally declared by the Council unacceptable, for lack of convincing evidence of its therapeutic value.

Soluble barbiturates for basal anesthesia received special consideration in the report on *Lyipal Soluble*.

A report which has received wide recognition both in America and in Europe was that on 'Histidine Hydrochloride versus Diet and Alkalis in Treatment of Peptic Ulcer'.

Probably no product received more attention throughout the year than did sulfanilamide on which the Council issued a number of reports and published the standards. Up to January 1, 1938 nine brands of sulfanilamide had been accepted by the Council all conforming to the rigid standards required.

A report on the standardization of digitalis products accepted for N N R and the report on dosage of preparations containing vitamins A and D have been of aid both to manufacturers and to prescribing physicians.

For a number of years the Council has insisted on limitation of the claims for the therapeutic value of Amnophylline. In its report in 1937 the Council declared that in view of accumulated evidence it could no longer recognize claims for Amnophylline for the relief of pain in angina pectoris, that claims could be made only for its use as a mild myocardial stimulant and as a diuretic.

Certain manufacturers were placing high potency vitamin D preparations on the market, particularly recommending their use in the treatment of arthritis. The Council rejected these products and pointed out the lack of any worthwhile evidence to support the claims.

The Council also ruled out the use of hydroquinone as a stabilizing agent in acceptable liver oil preparations containing vitamin A.

The Council declared unacceptable an oral vaccine for the treatment of colds.

The proprietary product "Edwenil" has been promoted to the medical profession with highly bombastic claims. An investigation undertaken under the auspices of the Council brought to light statements made by the manufacturer believed to be entirely unwarranted.

For years Avertin has been before the Council. A preliminary report was issued by the Council in 1930. After much consideration by the Council and the manufacturer an agreement was made that the other active ingredient in the product, known as Avertin Fluid, would be declared in the name and that thereafter the product would be known as Avertin with Amylene Hydrate. The product was therefore standardized, the claims were restricted, and Avertin with Amylene Hydrate is now described in New and Nonofficial Remedies.

Early in the year the Council made a preliminary report on mandelic acid and at a later date, after further confirmatory evidence had been received, accepted the product.

One of the drugs of lively current interest is Benzedrine Sulfate. An extensive report was published by the Council on the status of this product for which there has been great demand.

The foregoing is a brief summary of just a few of the numerous reports published.

The Council found it necessary to coin a number of non-proprietary names throughout the year, such as Sulfanilamide for para amino benzene-sulfonamide introduced in this country under the proprietary name of Prontylin, Riboflavin for the product previously known as vitamin B and Thiamin Chloride for the crystalline substance representing the hydrochloride of vitamin B<sub>1</sub>.

In cooperation with the Council on Foods, the Council on Pharmacy and Chemistry has kept in close touch with the vitamin situation. During 1937 a large number of authorities in the field were selected to write articles dealing with vitamins for the purpose of publication in THE JOURNAL. With a few exceptions these articles were all in type by the first of the year and, by the time this report appears in print, the series will be well under way. The plan is similar to that used for the articles on glandular therapy. After the vitamin articles have been published, the authors will be asked to recedit them for issuance in book form. The conceptions of vitamins are changing rapidly, giving rise to unavoidable confusion. These articles should do much to clear up the confused state so far as the application of drugs to problems of therapy is concerned and will constitute a most valuable source of authoritative information. The articles are being edited under the supervision of Dr. F. C. Bung, Secretary of the Council on Foods.

In this connection it may be pointed out that pure chemical substances are taking the place of indefinite mixtures. For instance, the Council on Pharmacy and Chemistry has accepted such pure substances as Carotene which is a precursor of vitamin A, Cevitamic Acid which is a crystalline vitamin C, Thiamin Chloride which is a crystalline form of vitamin B<sub>1</sub>, Riboflavin the pure substance previously known as vitamin B<sub>2</sub>, and it has under consideration Nicotinic Acid and Nicotinic

Acid Amide, which are parts of the vitamin B complex. Standards have also been drawn up by the A. M. A. Chemical Laboratory for one of the crystalline vitamin D substances. A number of years ago the Council stated that the polypharmaceutical vitamin mixtures are unscientific and that there is no more reason for combining all the vitamins in a shotgun mixture simply because of their names than there is for combining all the other forty or so essential dietary ingredients. The fact that pure crystalline substances are now being made available indicates anew the value of treating disease conditions with definite substances which may be given in carefully controlled doses. The history of the vitamins and the discovery of the pure substances is not much different from the history and isolation of active principles from alkaloidal-containing plant extracts. The promulgation of unessential products under catchy names indicating their alphabetical vitamin content or the presence of so-called synergistic actions or "plus vitamin" effect is an insult to the intelligence of American physicians.

#### PROBLEMS BEFORE THE COUNCIL

The problems before the Council are so difficult, require so much background of experience and are so numerous that they cannot be adequately discussed in the brief space of a report. Nomenclature still looms large. The problem of nomenclature may require most extended study in the near future in view of the recent court decision involving the wax paper or "cellophane" decision. If the decisions which have now been made are upheld in the Supreme Court, the extensive manner in which proprietary names are now used will require much consideration.

The acceptance of endocrine principles has occupied a large portion of the Council's time and a number of products, such as Theelin, also known as Estrone, Theclol—also known as Estriol, Profolol Benzozate, and several other substances—are under consideration.

#### MEMBERSHIP OF THE COUNCIL

The Council lost none of its active members during 1937 either by resignation or by death. It did, however, suffer the loss of two former members of the Council who had much influence in its formation. Dr. Julius Stieglitz, former vice chairman of the Council and chairman of its Committee on Rules and Procedure from the inception of the Council in 1905 to the time of his resignation in 1924, died Jan. 10, 1937. It need only be mentioned that the rules of the Council today remain much the same as those formulated under the direction of Dr. Stieglitz during the early history of the Council. Dr. Stieglitz was a forceful member, recognized as a foremost authority in chemistry. After his resignation in 1924 Dr. Stieglitz maintained an active interest in the work of the Council.

Dr. George H. Simmons, Editor Emeritus of THE JOURNAL, was chairman of the Council from the time of its inception until March 1927. He continued as an active member of the Council and in February 1935 was appointed an honorary life member, in which capacity he served until his death on Sept. 1, 1937. The Council on Pharmacy and Chemistry was formed at the instigation of Dr. Simmons. Through his far-sightedness, his militant editorship and his encouragement of absolute scientific integrity, the Council was able to carry on during the early years when it encountered much opposition. Today the record of the Council on Pharmacy and Chemistry as well as that of other departments of organized medicine stands as a monument to Dr. Simmons. Even to the time of his death Dr. Simmons received the weekly transactions of the Council and took part in discussions in which he was interested. His advice, wise counsel and camaraderie are greatly missed by his former colleagues. As stated in the published resolutions of the Council: "In his death the Council has lost a member of unique value, the medical profession a servant who served it faithfully."

The following members of the Council were reelected in 1937 to serve a five year period: Dr. E. M. K. Geiling, Dr. W. W. Palmer and Dr. S. W. Clausen.

#### Summary

Through the creation of a Division of Drugs, Foods and Physical Therapy composed of the Council on Pharmacy and Chemistry, the Council on Foods and the

Council on Physical Therapy, it has been possible to effect closer correlation of the work of these three councils and to enhance administrative efficiency.

The work of the Council on Pharmacy and Chemistry has been greatly increased during the last year, partly because of the submission of a large number of products by manufacturers who have not heretofore cooperated with the Council and because of the nature of investigations to be made, and for the further reason that the activities of the Council are apparently being more fully supported by the medical profession generally.

The publications of the Council have been kept up to date as fully as possible and have been changed in form and scope in such manner as has been necessary to keep them abreast of scientific advancement. An important series of articles dealing with vitamins, prepared by highly qualified investigators, are being published under the auspices of the Council, and these articles will later appear in book form.

The endocrine principles and new therapeutic substances of various kinds have required prolonged and intensive consideration. Many problems requiring the attention of the Council are of more complex nature than heretofore because of refinement of chemical processes, improvement in the thoroughness of clinical and laboratory investigations, the tendency toward specificity, the necessity for establishing standards and other factors of major importance.

There are still some manufacturers of products offered for therapeutic use who do not employ the necessary methods of investigation and check to insure either the purity or the usefulness of their products, but the continued use of such products cannot be sustained except as they are employed as therapeutic agents by members of the medical profession in their daily practice. The efforts of the Council on Pharmacy and Chemistry to establish rationalism in therapeutics deserve and should have the fullest support from all members of the medical profession.

Through the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry, grants have been made for the support of scientific investigations conducted by qualified investigators whose projects have been approved by the committee and some very valuable reports have been published.

### Council on Physical Therapy

Among the noteworthy accomplishments of the Council on Physical Therapy during the past year have been the establishment of standards for acceptable audiometers, the investigation of hearing aids, the examination of short wave diathermy apparatus, the advancement of the Council's educational activities and a wider distribution of information on physical therapy. As usual, a large part of the time of the Council has been devoted to advising the profession about the status of apparatus

### EDUCATIONAL ACTIVITIES

Gratifying results of the educational program under the direction of the Council are shown by the increased number of inquiries concerning graduate courses in physical therapy and teaching outlines for such courses from deans of medical schools. Requests for aid in planning physical therapy departments continued requests for instructional films and inquiries concerning accepted and rejected apparatus have been given careful attention. The Council on Medical Education and Hospitals has lent encouragement to this educational program.

It has been the aim of the Editorial Committee and the Committee on Education of the Council to acquaint the rank and file of the medical profession with the value of physical therapy, particularly of simple measures: heat, light and massage. This has been done largely by the publication of articles by lectures and by exhibits in addition to other educational activities. Besides reports concerning acceptable and non-acceptable apparatus other reports have appeared in THE JOURNAL setting standards for certain physical therapy equip-

ment, such as "Minimum Requirements for Acceptable Audiometers," "Evidence Required by the Council on Physical Therapy for Consideration of Apparatus Used in Fever Therapy," "Status of Diathermy and Short Wave Diathermy," "Physical Therapy in Hospitals With Fifty or More Beds," "Adopted articles have appeared in THE JOURNAL on Physical Therapy in Infantile Paralysis" and "The Present Status of Short Wave Diathermy." A section on "Physical Therapeutics" has been prepared and is being included in the next edition of the Handbook for Interns. The supply of the second edition of the Handbook on Physical Therapy has been exhausted and a revision is scheduled. The booklet "Apparatus Accepted" is to be revised and made much larger.

Other educational activities of the Council include work with state and county medical societies, such as arrangement of programs, presentation of papers stressing the value of physical therapeutic measures, planning exhibits and lending films. Outworn films will be replaced as soon as possible. During the year the Council sponsored six exhibits in cooperation with the Committee on Scientific Exhibit of the American Medical Association, including one at Atlantic City. In this exhibit a series of lectures was given on the fundamental physical principles employed in electrical apparatus used for therapeutic purposes, short lectures were given on the use of physical agents, and a report of research was sponsored by the Council.

Because of an increased demand for instructional material a suggested outline of lectures on physical therapy has been prepared and made available to deans of medical schools. Progress in this field is noted by the establishment of several graduate courses in physical therapy with fellowships.

### INVESTIGATION OF APPARATUS

Evidence of the closer cooperation between manufacturers and the Council is indicated by the withdrawal from the market of certain devices that have been declared nonacceptable, although in many cases the reports were not published. In some instances new units have been designed to meet Council requirements, and in others existing devices have been changed to conform with suggestions of the Council. Manufacturers are being impressed with the necessity of presenting advertising copy to the Council for criticism and suggestions prior to publication of the report thus eliminating many misleading advertising claims and bringing about better standards in physical therapy. The submission of a wider range of therapeutic and diagnostic equipment shows the growing importance placed on the Council's seal of acceptance.

More short wave diathermy units have been considered than any other type of equipment with ultraviolet radiation device next in number. Other types of products considered are ear filters, anesthetic apparatus, audiometers, hearing aids, bird cages, fever cabinets, sterilizing outfits, insufflators and a variety of equipment for oxygen therapy including regulator, rebreathing outfits, nasal catheters, face tents and humidifiers. Owing to the number of devices considered, there is an ever increasing volume of correspondence passing through the secretary's office.

### SPECIAL INVESTIGATIONS

**Audiometers.**—A joint meeting of manufacturers of audiometers and hearing aids and a group of otologists appointed by the Council was held, at which many interrelated problems were discussed and agreements reached that aided in the formulation of regulations for acceptable audiometers. The expert advice given by the consultants contributed much in paving the way toward standardization of these instruments. Although this work is not completed the progress made thus far indicates that these studies will be of great benefit to many thousands of persons with defective hearing. Tentative Minimum Requirements for Acceptable Audiometers were published in THE JOURNAL. The National Bureau of Standards, the American Society for the Hard of Hearing and the American Standards Association have rendered the Council valuable assistance in considering audiometers and hearing aids.

**Research.**—Five grants were awarded to aid in research during the past year. These grants are available to competent investigators who make application and who in the opinion of



the Committee on Scientific Research of the Council on Physical Therapy, have problems of merit. Six articles were published by the recipients during the past year, reporting on research made possible by these grants.

**Radiation**—There is not at present sufficient critical evidence available to substantiate the value of radiation from the mercury glow lamp in the prevention and cure of rickets in children nor are there critical data to support the claims made for bactericidal action of ultraviolet radiation *in vivo*, although evidence shows that cultures of bacteria may be made sterile by ultraviolet irradiation in Petri dishes. Consequently the Council is giving careful consideration to both problems. An attempt might well be made to establish standards of equivalents for chemical substances and radiant energy, particularly ultraviolet.

The investigation of radium and radon seeds has progressed satisfactorily. It is expected that reports will be made available to the profession during the coming year.

Although no reports have been published, the Council is going forward with the consideration of x-ray equipment.

**Ophthalmic Devices**—Consultants on ophthalmology, appointed by the Council, have given consideration to ophthalmic equipment for which therapeutic and diagnostic claims are made. The consultants have rendered valuable service and undesirable instruments and equipment have been withdrawn from the market as a result of their efforts.

**Fever Therapy Apparatus**—A Committee on Hyperpyrexia, appointed by the Council, formulated certain requirements in relation to fever therapy equipment and its conclusions were published in *THE JOURNAL* under the heading "Evidence Required by the Council on Physical Therapy for Consideration of Apparatus Used in Fever Therapy."

#### Summary

The principal achievements of the Council on Physical Therapy during the past year have been the establishment of standards for acceptable audiometers, the investigation of hearing aids, the examination of short wave diathermy apparatus and the advancement of the Council's educational activities with a wider distribution of information on physical therapy.

Under the auspices of the Council, a joint meeting of representatives of manufacturers of audiometers and hearing aids with Council appointed consultants paved the way for a more prompt agreement on standards for acceptable audiometers and facilitated better understanding of interrelated problems. The cooperation secured from the manufacturers of these devices is most gratifying to the Council.

Beneficial results of the educational program launched several years ago are now being noted, though much remains to be done.

As usual the Council has continued with its investigation of and reporting on apparatus submitted for the purpose, and in some instances it has investigated and reported on products not presented. The consideration of short wave diathermy apparatus has predominated in the Council's investigating activities.

Research grants awarded to investigators presenting problems of merit have reaped gratifying results and several excellent articles have been published.

#### Council on Foods

During 1937 the efforts of the Council on Foods to promote truthful advertising of wholesome food products continued unabated. It is gratifying to report that many producers have continued to accord the Council their full cooperation in this work. Much of this labor may go unrecognized because it consists of the elimination of misleading health claims before they appear in advertising directed both to the medical profession and to the public. The importance of the constant efforts of the Council in this connection scarcely can be evaluated but review of advertising is only one phase of the Council's activities.

The demands made on the Council's facilities are increasing constantly and, of course, the demands on the time of the individual members of the Council are increasing likewise. Matters given consideration during the year have included such diverse questions as the claims made for "one formula preparations" used in feeding infants, the nutritional value of the proteins of milk, the dietary significance of fruit juices, and many others which have been reported from time to time in *THE JOURNAL*. The problem of lead in foods received particular attention, and from a review of the evidence obtainable it was concluded that the products standing accepted by the Council contain either no lead or minute traces which are of no known hygienic significance. This question is important and is being investigated further. Another topic considered was the difficult question of how foods can be rated as sources of the dietary essentials. A suggested procedure for judging the value of foods as excellent, good or fair sources of the different dietary factors has been published.

#### REPORTS OF THE COUNCIL

The Council has been in a unique position with regard to having information on the commercial preparation of many food products. This information has been utilized along with other facilities of the Council, in the preparation of informative reviews on the nutritional value of foods and interpretations of evidence available in the literature with regard to nutritional problems. General reports have been published on a number of subjects and a brief review of some of them follows.

The theory has been advanced in some quarters that cereal products contain a toxic decalcifying substance and, in order to overcome the effects of this hypothetical factor, it would be well to fortify cereals with a calcifying substance such as vitamin D. After reviewing available evidence, the Council concluded that there is no good evidence for the existence of this hypothetical toxin. Hence there appears to be no necessity at the present time to fortify cereal products intended for general human consumption with vitamin D in order to overcome the effects of an alleged toxic factor.

Dextrose is the normal sugar of the blood and studies of its physiologic importance have been made since the days of Claude Bernard. Recent commercial developments have led to the production and marketing of pure dextrose at a comparatively low price. This sugar, therefore, has become widely used both as a food itself and as an ingredient of manufactured food products. Comparative claims have led the Council to review and to evaluate the available evidence on the place of dextrose in the diet of normal persons. It is considered that dextrose is well utilized as a food but that it possesses no practical advantages over many other carbohydrates in combating ketosis produced by either a ketogenic diet or in early stages of fasting. Contrary to some claims, dextrose itself does not have unique advantages when administered by mouth in the prevention or relief of fatigue or in the maintenance of muscular efficiency. Considerations of allowable claims for dextrose appear in the full report.

Another report summarized available information on the production and properties of milks which produce a soft curd. An attempt was made to evaluate the nutritional significance of these milks, particularly in the feeding of infants. The Council concluded that pasteurization has little effect on the nature of the curd but that softening of the curd may be accomplished by boiling, dilution, addition of acids or alkalis, addition of various cereal waters, removal of some of the ionizable calcium, homogenization, evaporation or drying, and that in general, digestion in the stomach of milk with a low curd tension is more rapid than the digestion of milk which does not have this property.

Strained fruits and vegetables are useful for infant feeding because of their physical texture, nutritive properties and their psychologic value in teaching the infant at an early age to receive food from the spoon and to accept a variety of flavors and textures. Strained foods usually may be fed between the fourth and the sixth month though this is a question for the physician to decide as is the matter of replacing such products with coarser foods. In this report the Council also states that home strained foods properly prepared are fully as nutritious as commercial products.

Another report of the Council provides a brief survey of available evidence relative to the usefulness of fresh apples and preparations of dried and powdered apples in the dietary treatment of diarrhea in infants and small children. There is evidence that the apple is effective in the treatment of such conditions, though the mechanism responsible for the reported success is not clear. The Council emphasizes that the use of the apple or preparations of the apple does not preclude the necessity of other measures such as parenteral administration of fluids when indicated, the careful selection of a suitable transition diet, and competent pediatric supervision.

There has been considerable discussion of the merit of spinach as a food. In a review of published reports from scientific and medical literature, the Council concluded that spinach should be regarded as a wholesome and valuable food. Spinach is a rich source of vitamin A and contributes vitamin C, iron and roughage to the diet. The evidence shows that the iron of spinach is not wholly available, nor is it a good source for infants in amounts which they can digest. The calcium is not utilized because it is present largely in the form of insoluble calcium oxalate.

#### GENERAL DECISIONS

In its report on vitamin D milk, the Council stated, "For the present milk is the only common food which will be considered for acceptance when fortified with vitamin D." This decision now has been amended by the Council so that milk products which are used in the same manner and for the same general purposes are included under the term "milk." This means that not only fluid milk but evaporated milk, dried milk, dried skimmed milk and flavored milk drinks prepared from whole or skimmed milk (provided the volume of milk in the prepared drink is at least 80 per cent of the total volume) will be eligible for acceptance when fortified with vitamin D.

The Council has been insisting that its seal does not constitute recommendation of any food product. Manufacturers of some accepted products have been using a statement on their labels such as "Recommended as a carbohydrate supplement to milk in infant feeding." The Council considered that this statement constitutes an infraction of its rules particularly when the phrase "recommended for" appears in close association with the seal of the Council. Firms have been informed that substitute phrases such as "suitable for," "useful for" or "adapted to" might be used in place of the phrase "recommended for."

#### GENERAL POLICIES

Two years ago it was decided that the facilities of the Council should be conserved by acceptance of only those food products which seem to require attention. In 1936, carbonated beverages and the syrup bases from which some of them are made, breads and other ordinary bakery products were included in the "exempted list" because it was believed that there was no longer a need to act on them. During the past year, "exemption" without prejudice to the products themselves has been extended to cover a number of other food products. Foods falling in the foregoing category and having nutritional value beyond that of ordinary products, or which are promulgated with special claims, will be considered and reported on by the Council when such action is considered desirable. Manufacturers that have cooperated with the Council are being given every possible consideration in the matter of disposal of labels and advertising bearing the seal of acceptance.

#### MEMBERSHIP AND CONSULTANTS

During the year the terms of membership of Dr. Mary Swartz Rose and of Dr. Philip C. Jeans expired and they were reelected by the Board of Trustees to serve another period of five years.

Among the persons called on as consultants during the year, the services of the following are gratefully acknowledged: Dr. Henry C. Eckstein, Dr. H. J. Fisher, Miss Mary A. Foley, Dr. Ramon F. Hinzal, Dr. Elmer N. Nelson, Dr. Genevieve Stearns, Dr. William C. Rose, Dr. Grace MacLeod, Dr. Margaret Hessler Brookes, Miss Ruth Blair, Dr. Evelyn G. Halliday and Dr. Henry C. Sherman.

#### Summary

The efforts of the Council on Foods to promote truthful advertising of wholesome food products and to develop scientific progress in the field of nutrition have been carried on intensively. There is a constantly increasing demand on the services of the Council and an earnest effort has been made to meet the demand as fully as possible.

The Council has given careful and thorough consideration to a large number of important problems, some of which have lately developed, and has published numerous reports dealing with matters of varying nature that have demanded official attention. It has been necessary in order to conserve the facilities of the Council to exempt many products that were formerly considered.

The Council on Foods has had the benefit of the services of a number of distinguished scientists, who have cooperated in the study of numerous scientific questions and who have given able assistance in conducting necessary scientific investigations.

#### The Chemical Laboratory

An achievement of the A. M. A. Chemical Laboratory in 1937 was the investigation of Elixir of Sulfanilamide, Massengill. While the work was done under the auspices of the Laboratory, the facilities of the Council on Pharmacy and Chemistry were utilized, and, since the Laboratory is a unit of the headquarters' administrative Division of Drugs, Foods and Physical Therapy, there was close cooperation between them. Although the story of the Elixir of Sulfanilamide incident is well known by this time, certain observations are in order. The Laboratory determined the composition of the Elixir of Sulfanilamide, it analyzed specimens which had been used by patients who had died, specimens obtained on the open market and the contents of a gallon bottle ordered directly from the manufacturer. As soon as the composition was determined, "synthetic" and "modified synthetic" mixtures were prepared. These were then turned over to Dr. E. M. A. Geiling and his collaborators of the Department of Pharmacology of the University of Chicago, who tested them along with sulfanilamide alone and with the Elixir itself. Experimental animals had the same symptoms and died within approximately the same time as the patients, whether given the 'Elixir of Sulfanilamide' or the solution containing the diethylene glycol in similar amounts. Necropsies were reported by Dr. Paul R. Cannon of the Department of Pathology of the University of Chicago on animals which had been so killed and these in turn were compared with sections of kidneys and livers from patients who had succumbed. There was close cooperation with the Food and Drug Administration of the federal government, which did excellent work in tracing all shipments which had been placed on the market. As soon as the government inspectors reported deaths, the headquarters office of the American Medical Association was notified and contact was immediately established by telephone or telegram with the physicians concerned. Seventy-six deaths were confirmed in this manner. In addition, fifteen or twenty deaths of patients who took the Elixir were reported but it was definitely established that this drug was exclusively responsible or, in some cases, confirmatory evidence could not be obtained.

Within a week after the first report of poisonings was received, the Laboratory had completed analytic tests and Dr. Geiling and his co-workers had made sufficient tests on animals to show that diethylene glycol was toxic in the amounts given. As soon as the essential facts were established public announcement was made through the lay press as well as through scientific publications. The entire problem was solved in less than two weeks after the first sample of the product at fault was received by the Laboratory. This illustrates anew the value of the organization maintained by the Association, including trained chemists who may be asked to emergency problems immediately, splendidly qualified advisers, who put aside everything to push through this policy of militant editorship and an organized method of

out news, the Board of Trustees, which provides funds and equipment to make possible prompt and effective action in dealing with emergencies. The reports were made available to the medical profession in record-making time. This situation, tragic as it was, has served as an excellent opportunity of bringing home to Congress and to the public the necessity for an effective food and drug act. Already, legislation has been introduced in both houses of Congress to forestall similar tragedies. Appreciative acknowledgment is made to the Tulsa group of physicians who first brought the matter to the attention of the Laboratory and whose report on clinical and pathologic observations aided the work in Chicago. Acknowledgment is also made to other physicians in various places. Dr O E Hagebusch of St Louis contributed a fine pathologic report. Dr Geiling with his associate, Julius M. Coon, and Dr Paul R. Cannon gave unstintingly of their time while investigations were under way. Thanks are also due to their colleagues in the biologic science group of the University of Chicago. Dr E K Marshall Jr and Dr J Howard Brown of Johns Hopkins University aided in the problem. Special recognition is due Mr W G Campbell and Mr J O Clarke of the Food and Drug Administration, who directed the splendid work done by that agency. The members of the A M A Chemical Laboratory staff who worked on this problem were Dr E W Schoeffel, Dr H R Kreider and Dr J B Peterson. Dr Schoeffel deserves special mention because of the prodigious amount of work he did with a minimum amount of rest. The Board of Trustees at its November meeting expressed its appreciation by a formal vote of thanks.

#### GENERAL ACTIVITIES

The work of the Laboratory during the year included establishing standards, among other products, for Cobefrin Hydrochloride, Novotropine, Propadrine Hydrochloride Effervescent Calcium Gluconate, Benzedrine Sulfate Sulfanilamide, Riboflavin, Thiamin Chloride (Vitamin B<sub>1</sub> Hydrochloride), Gitalin, several endocrine principles which were standardized for the first time, Avertin with Amylene Hydrate, Mecholyl, Silver Picrate, and bismuth preparations. The Laboratory has also analyzed several products which were the subject of reports by the Bureau of Investigation and has carried out a mass of routine work.

Members of the Laboratory staff appeared before scientific societies, either discussing work done by the A M A Chemical Laboratory or giving lectures of a popular character. Papers are in preparation or have been submitted to journals dealing with the comparative analysis of crystalline preparations containing insulin—probably insulin zinc. Another paper deals with the standardization of Thiamin Chloride, wherein the chemical method is described as a substitute for the old method of biologic assay while another deals with the chemical determination of glycol and glycol ethers. A paper describing the A M A Chemical Laboratory, particularly its microscopic and spectroscopic facilities, has been published in the analytic edition of *Industrial and Engineering Chemistry*. A motion picture prepared by A M A chemists, illustrating certain microchemical technique and the use of other laboratory apparatus, has been used by a number of societies in order to follow this work.

The laboratory has also prepared book reviews answered inquiries and cooperated with *THE JOURNAL* and other departments of the Association.

#### Summary

An important accomplishment of the Chemical Laboratory in the past year resulted from investigations of the poisonous effects of a product known as Elixir of Sulfanilamide. These investigations were made with the aid of the Council on Pharmacy and Chemistry, of members of the scientific staff of the University of Chicago, of members of the Food and Drug Administration of the Department of Agriculture of the federal government, and of individual physicians. It was clearly established that at least seventy-six deaths were due to the use of this product and that the toxic agent involved was diethylene glycol.

Much work was done by the Laboratory during the year in establishing standards for important therapeutic

products. The usual laboratory investigations of products submitted by the Council on Pharmacy and Chemistry and those submitted by the Bureau of Investigation were conducted. Members of the Laboratory staff have contributed to the programs of several important scientific societies during the year, and papers presented have been published. Members of the staff have also participated in educational programs before public audiences. A motion picture pertaining to the work of the laboratory has been shown before a number of scientific groups.

#### Council on Industrial Health

In accordance with instructions received from the House of Delegates at the Atlantic City session in 1937, the Board of Trustees has established a Council on Industrial Health with the following official personnel: Dr Stanley J. Seeger, Chairman, Milwaukee; Dr Harvey Bartle, Philadelphia; Dr L D Bristol, New York; Dr Warren F. Draper, Washington, D C; Dr Leroy U. Gardner, Saranac Lake, N Y; Dr Morton R. Gibbons, San Francisco; Dr H H. Kessler, Newark, N J; Dr A J. Lanza, New York; Dr A D. Lazenby, Baltimore; Dr Earl D. Osborne, Buffalo; Dr C W. Roberts, Atlanta, Ga; Dr C D. Selby, Detroit; and Dr Carl M. Peterson, Secretary, Chicago.

The Board of Trustees had recognized the need for establishing measures whereby the American Medical Association might be in position to aid in the solution of important problems that have arisen in the field of industrial health. The Section on Dermatology and Syphilology had interested itself intensively in the study of industrial dermatoses and had adopted a report of a special committee of the section asking for the cooperation of the Association in the establishment of a clearing house for the accumulation and recording of information on industrial dermatoses.

In March 1937 the Board of Trustees invited a relatively large group of physicians who were known to have had wide experience in the field of industrial health to participate in a conference at the Association's offices. The discussions at this conference, which occupied an entire day, dealt with many important problems, and it was the unanimous opinion of the consulting group that the American Medical Association should establish the Council on Industrial Health. At the Atlantic City session in June 1937 the Board of Trustees was authorized by the House of Delegates to proceed with organization of the Council as a standing committee of the Board of Trustees.

The Council on Industrial Health held its first meeting on Dec 10, 1937, at which consideration was given to the details of organization and to a discussion of the possible functions that might be assumed and of the scope of work to be undertaken. Committees were appointed to report at a later meeting of the Council, which was held in Chicago on March 26, 1938. At the second meeting, as the result of recommendations submitted by these committees, plans for the initial activities of the Council were adopted. These plans involve investigations of present activities in the field of industrial health on the part of various groups and organizations, including governmental agencies, industries, labor organizations and other interested groups.

It is the intention of the Council on Industrial Health to establish and to maintain official contact with constituent state medical associations. These associations will be requested to create committees on industrial health to cooperate with the Council in the study of problems with which that body may be properly concerned, in compiling information and in developing methods and measures that may enable the American Medical Association to make helpful contribution toward the solution of these important problems.

The Council hopes that it will be possible to arrange for an annual conference on industrial health to be held in Chicago. Committees were appointed to undertake the preparation of special articles that may be published in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*. The Council on Industrial Health will endeavor to establish close cooperative effort with the Council on Medical Education and Hospitals for the purpose

of promoting graduate facilities in the field of industrial health. One committee is engaged in the important task of studying nomenclature, and this committee will attempt to lay the ground for a standard nomenclature in the particular field with which the Council is concerned. Another important activity of the Council will be concerned with a study of those provisions of compensation laws which may have a direct bearing on industrial health.

The office of the Council on Industrial Health is located in the Association's building at 535 North Dearborn Street, Chicago, under the immediate direction of Dr. Carl M. Peterson, Secretary of the Council.

#### Summary

The Council on Industrial Health, organized in December 1937, has held two official meetings and has developed a working organization through the appointment of a secretary and the creation of official committees. Articles dealing with various subjects of major importance in the field of industrial medicine are in course of preparation for publication. The Council has adopted official rules and is proceeding as rapidly as possible, with due conservatism, toward the prosecution of plans that have been officially adopted.

#### Advisory Committee on Advertising of Cosmetics and Soaps

The Advisory Committee on Advertising of Cosmetics and Soaps was organized during the past year. It has issued only one statement but has considered quite a number of cosmetic preparations which *THE JOURNAL* has been asked to advertise in its pages. Firms have been given a liberal amount of time in which to revise advertising. The number of members on the Committee has been increased from three to five, with two ex-officio members in addition. The Committee plans to issue reports during 1938 and hopes at an early date that the preliminary work will have progressed to such an extent that reports may be made on all the cosmetic products which are submitted to *THE JOURNAL*.

#### Bureau of Legal Medicine and Legislation

##### FEDERAL LEGISLATION

Except where otherwise indicated, the following report on federal legislation speaks as of March 24, 1938. The legislation discussed includes some that was pending in the first session of the Seventy-Fifth Congress when the House of Delegates last met, some that was introduced during the special session that followed, and some introduced in the third session that convened in January and at present writing is still continuing. An effort has been made to bring the information as nearly up to date as is practicable, regardless of the calendar year covered by other portions of this report.

An analysis of the laws passed during the first and special sessions of the Congress and of the bills pending when the second regular session convened, Jan. 3, 1938, was published in the January 15 and 22 issues of *THE JOURNAL*.

**Federal Health Insurance**—S. Res. 143, a resolution introduced by the former Senator Black of Alabama, would authorize the Senate Committee on Education and Labor to make a full and complete investigation in order to determine the best and most effective kind of Federal legislation to provide a national public-health policy throughout the entire United States and to report to the Senate as early as practicable the recommendations outlining the kind of legislation it is believed will most effectively accomplish this purpose. This resolution is still before the Committee on Education and Labor, to which it was referred.

S. 855, introduced by Senator Capper of Kansas, is entitled "A Bill to aid in alleviating the loss caused by sickness." This bill proposes the establishment of a federal system of health insurance and is patterned after the so-called Epstein health insurance bill. It was referred to the Senate Committee on Finance. It is still before that committee.

S. J. Res. 188, introduced by Senator Lewis of Illinois, is a resolution "to provide medical aid for the needy and stricken with illness who are unable because of poverty to provide treatment and hospitalization, also to establish and license medical practitioners as civil officers of National Government." This resolution was referred to the Senate Committee on Finance, where it still is.

H. R. 8237, introduced by Representative Voorhies of California "to provide for the general welfare by establishing a Cooperative Home Board and a system of Cooperative Home Associations," proposes that the Public Health Service will supply and supervise the medical service needed by members of the proposed associations and supervise the sanitary facilities of their homes. It was referred to the House Committee on Banking and Currency, where it still is.

H. R. 9847, introduced by Representative Treadway of Massachusetts, by request, proposes to establish a national system of health insurance. This bill was introduced as late as March 14, 1938. It was referred to the House Committee on Interstate and Foreign Commerce and is still in that committee.

H. Res. 452, submitted March 28, by Representative Scott of California, contemplates the creation of a special House committee to investigate the activities of the American Medical Association, state and county associations and the Medical Society of the District of Columbia in connection with Group Health Association, Inc., of the District of Columbia. The resolution was referred to the House Committee on Rules.

**Federal Health Activities and Subsidies**—Health Activities. Generally, H. R. 4475, introduced by Representative Voorhies of California, proposes "to increase authorization of appropriations for Public Health Service under the Social Security Act." This bill would increase the appropriation for aid by the United States Public Health Service to states, counties, health districts and political subdivisions from \$8,000,000 annually to \$20,000,000 annually and to increase the appropriation for the Public Health Service annually from \$2,000,000 to \$5,000,000, for investigation of disease and problems in sanitation, in accordance with the terms of the Social Security Act.

**Cancer**—S. 2067, a bill entitled "A Bill authorizing the Surgeon General of the Public Health Service to control and prevent the spread of the disease of cancer," was introduced April 2, 1937, by Senator Bone of Washington, on behalf of himself and ninety-four other senators, out of a total Senate membership of ninety-six. A companion bill, H. R. 6100, was introduced in the House of Representatives by Representative Magnuson of Washington.

Another cancer bill was introduced, H. R. 6767, by Representative Maverick of Texas, a bill "to promote research in the cause, prevention and methods of diagnosis and treatment of cancer, to provide better facilities for the diagnosis and treatment of cancer, to establish a National Cancer Center in the Public Health Service and for other purposes."

H. J. Res. 428, relating to cancer, was introduced by Representative Hunter of Ohio a joint resolution "to provide for the establishment of a National Health Center, as a permanent memorial to Thomas Jefferson, for the purpose of promoting research in the cause, prevention, and methods of diagnosis and treatment of cancer, to provide better facilities for the diagnosis and treatment of cancer, to establish a National Health Center in the Public Health Service, and for other purposes."

All these bills and the joint resolution were made the subject of a hearing before a joint meeting of a subcommittee of the Senate Committee on Commerce and a subcommittee of the House Committee on Interstate and Foreign Commerce. As a result there was evolved an Act to provide for, for aid and in coordinating research relating to cancer, to establish the National Cancer Institute, and for other purposes, which was approved by the President Aug. 5, 1937 and became effective thirty days later. The act is referred to as the National Cancer Institute Act. It established in the Public Health Service a division known as the National Cancer Institute, under the direction of the Surgeon General of the P.

Health Service and a National Cancer Advisory Council appointed by him. The Council is authorized—

- (a) To conduct assist and foster researches investigations experiments and studies relating to the cause prevention and methods of diagnosis and treatment of cancer
- (b) To promote the coordination of researches conducted by the Institute and similar researches conducted by other agencies organizations and individuals
- (c) To procure, use and lend radium as hereinafter provided
- (d) To provide training and instruction in technical matters relating to the diagnosis and treatment of cancer
- (e) To provide fellowships in the Institute from funds appropriated or donated for such purpose
- (f) To secure for the Institute consultation services and advice of cancer experts from the United States and abroad and
- (g) To cooperate with State health agencies in the prevention control and eradication of cancer

The act authorized an appropriation not to exceed \$750,000 for the erection and equipment of a suitable and adequate building and facilities for the use of the institute and the appropriation annually of \$700,000 for the purpose of carrying out the provisions of the act

The establishment of the National Cancer Institute, however, did not check proposals on behalf of cancer sufferers. H R 8564, introduced by Representative Towey of New Jersey, since deceased, proposes "to establish a national foundation for the purpose of promoting research into the cause, prevention, methods of diagnosis and treatment of cancer, and for other purposes." This bill was referred to the House Committee on Interstate and Foreign Commerce, where it still is. And H J Res 468, a joint resolution to dedicate the month of April in each year to a voluntary national program for the control of cancer, was introduced by Representative Rogers of Massachusetts. This joint resolution proposes that the President shall issue annually a proclamation setting aside the month of April of each year as Cancer Control Month and shall invite annually the governors of the several states and territories and possessions of the United States to issue proclamations for like purposes. It was referred to the House Committee on the Judiciary and was reported, March 10, 1938, with a recommendation that it pass. It has passed the House and Senate.

H R 8655, introduced by Representative Dunn of Pennsylvania, proposes to provide \$200,000,000 for the prevention and cure of cancer, infantile paralysis, tuberculosis, blindness, deafness and other social diseases. It was referred to the House Committee on Interstate and Foreign Commerce, where it still is.

Veneral Diseases. H R 3680 was introduced by Representative Pfeifer of New York, to amend the Social Security Act by authorizing an appropriation of \$25,000,000 for the control of venereal diseases. This bill proposes an appropriation of \$25,000,000 annually to assist states, counties, health districts and other political subdivisions of the states in establishing and maintaining adequate services for the prevention, control and treatment of venereal diseases, the money to be distributed under the federal subsidy system and the work done to be under the supervision and control of the Surgeon General of the Public Health Service. This bill was referred to the House Committee on Ways and Means and it is still there.

H R 7850 was introduced by Representative Boren of Oklahoma to authorize an appropriation of \$4,000,000 for the control of venereal diseases, and for other purposes. This bill proposes to authorize an appropriation of \$4,000,000 to remain available until expended, to be allotted to the several states by the Surgeon General of the Public Health Service for expenditure by such states for the control of venereal diseases. This bill was referred to the House Committee on Interstate and Foreign Commerce, where it still is.

H R 9047, introduced by Representative Bulwinkle of North Carolina, proposes to impose additional duties upon the United States Public Health Service in connection with the investigation and control of the venereal diseases. This bill is similar to S 3290 discussed later, introduced by Senator La Follette of Wisconsin. H R 9047 proposes to authorize appropriations for federal subsidies, to be distributed by the Surgeon General of the Public Health Service among the several states apparently at his discretion, beginning at \$3,000,000 a year and

reaching in the fiscal year ending June 30, 1942, the sum of \$25,000,000, which amount, it is proposed, shall be appropriated annually. The only additional duty it proposes to impose on the Surgeon General seems to be the supervision and control of the work done by the several states on the basis of the grants of public moneys that he makes. This bill was referred to the House Committee on Interstate and Foreign Commerce, where it now is.

S 3290, Senator La Follette's bill, was referred to the Senate Committee on Commerce, which recommended its enactment after reducing the appropriations to the following amounts for the fiscal year ending June 30, 1939, \$3,000,000, for the fiscal year ending June 30, 1940, \$5,000,000, for the fiscal year ending June 30, 1941, \$7,000,000, and for each of the ten fiscal years thereafter such sum as may be needed to carry out the purposes of the act. This bill is now on the Senate Calendar.

H J Res 572, introduced by Representative Boren of Oklahoma, proposes to require a report from the Public Health Service, during the current session, which began Jan 3, 1938, of "(1) all facts pertaining to the prevention of syphilis, with particular reference to the steps which have or may be taken by such Service to assist in the prevention of such disease, and (2) any recommendations for legislation or other action by the United States which such Service may deem necessary in the prevention of such disease." This resolution was referred to the House Committee on Interstate and Foreign Commerce, where it now is.

Tuberculosis. H R 8131, introduced by Representative Terry of Arkansas, proposes to provide for tuberculosis hospitals and their operation. It proposes to authorize an appropriation of \$5,000,000 annually for five years, to enable each state to make adequate provision of hospital beds for tuberculous patients. The money is to be spent under the direction of the Surgeon General of the Public Health Service. Payments are to be made to the several states from time to time on the certificates of the Surgeon General, showing that the state to be paid "has submitted a satisfactory plan for provision of hospital care for tuberculous patients and which has appropriated from its own funds 25 per centum of the total sum required to carry out the plan." This bill was referred to the House Committee on Interstate and Foreign Commerce, where it still is. An identical bill, S 2746, was introduced in the Senate by the late Senator Robinson, July 6, 1937, and referred to the Senate Committee on Education and Labor. It is still in that Committee.

S 123, introduced by the late Senator Robinson, by request, proposes "to provide for tuberculosis hospitals and for their operation." This bill proposed to authorize an annual appropriation of \$5,000,000 for an indefinite period, "for the purpose of enabling each State to provide and operate at least one hospital bed for tubercular patients to each annual death from tuberculosis." Payments will be made, the bill proposes, to states which have submitted, and had approved by the Surgeon General of the Public Health Service state plans for such hospitalization. This bill was referred to the Senate Committee on Education and Labor, where it still is.

H R 8655, introduced by Representative Dunn of Pennsylvania, proposes to authorize the appropriation of \$200,000,000 for the prevention of certain diseases, among them tuberculosis. The other diseases covered by the appropriation are cancer, infantile paralysis, blindness, deafness and other social diseases. This bill was referred to the House Committee on Interstate and Foreign Commerce, where it now is.

Infantile Paralysis, Blindness, Deafness and Other Social Diseases. H R 8655 introduced by Representative Dunn of Pennsylvania proposes to provide \$200,000,000 for the prevention and cure of cancer, infantile paralysis, tuberculosis, blindness, deafness and other social diseases. The President is to be empowered to draw from the federal treasury the amount of money specified to carry out the provisions of the act, but no restrictions whatever are imposed on the methods to be used to accomplish the ends aimed at.

Silicosis and Related Dust Diseases. H R 7971 and H R 9689 both introduced by Representative O'Connell of Montana propose to regulate interstate commerce in goods produced under conditions exposing employees to the hazards of



silicosis and related dust diseases" To accomplish that end, the bills would make it unlawful for any person to ship or deliver for shipment goods in interstate or foreign commerce if they were produced in any mine, quarry, mill, workshop, factory or other place of employment situated in the United States in which silica dust or other harmful dust hazard is present, in violation of any orders prescribed by the Secretary of Labor, which orders the secretary is to be authorized by the act to issue The bills were referred to the House Committee on Labor, where they still are

Hospitals for the "Medically Needy" S 3631, introduced by Senator Pepper of Florida, is a bill to provide for assistance to states, counties, health districts and other political subdivisions of the states in the construction of additional hospital facilities for the medically needy For the construction of such hospitals, including health centers, the bill proposes annual appropriations of \$200,000,000 for five years, for the maintenance of such hospitals, annual appropriations of \$73,000,000 for five years, and to assist states, counties, health districts and other political subdivisions to provide hospital care for the "medically needy" annual appropriations of \$1,000,000 for five years The federal appropriations proposed by this bill are to be allotted by the Public Health Service to the several states on the basis of (1) the extent of need for additional hospital facilities and hospital care for the "medically needy" and (2) the financial needs of the respective states The money allotted must be spent in accordance with plans approved by the Surgeon General of the Public Health Service

Medical Care for Transients H R 9256, introduced by Representative Voorhis of California, proposes to amend the Social Security Act to provide for aid to states for the care of transients The bill proposes to authorize an appropriation of \$10,000,000 for the fiscal year ending June 30, 1938, and for each fiscal year thereafter a sufficient sum to carry out the purpose of the bill, such sums to be allotted to the several states for the purpose of enabling them to furnish financial assistance or other assistance, including medical, dental and mental aid to needy transients To qualify for the receipt of any allotment, each state must submit plans for aid to transients to the Social Security Board and have them approved by that board

Foods, Drugs, Diagnostic and Therapeutic Devices and Cosmetics—Helium Gas H R 7494, introduced by Representative (now Senator) Hill of Alabama, and S 1567, introduced by Senator Sheppard of Texas, proposed to amend the act entitled "An Act authorizing the conservation, production, and exploitation of helium gas, a mineral resource pertaining to the national defense, and to the development of commercial aeronautics, and for other purposes" The purposes of both bills included the establishment of means by which helium gas not needed for military purposes might be sold for various civilian purposes, among them use for investigation and treatment of diseases The Senate bill was passed by Congress and approved by the President Sept 1, 1937 Regulations governing sales for medical and other nongovernmental uses have been approved by the President and were published in the Federal Register, Feb 26, 1938, pages 535-541 A summary appeared in THE JOURNAL, March 19, 1938, page 907

Cannabis H R 6906 was introduced by Representative Doughton of North Carolina "to impose an occupational excise tax upon certain dealers in marihuana, to impose a transfer tax upon certain dealings in marihuana, and to safeguard the revenue therefrom by registry and recording" This bill, which originated in the Treasury Department, proposed to regulate the possession, dispensing, administering and prescribing of cannabis and its preparations and derivatives along lines similar to those imposed on the possession, dispensing, administering and prescribing of opium and coca leaves, their derivatives and compounds, by the Harrison Narcotic Act The act was passed by Congress and was approved by the President Aug 2, 1937 Regulations promulgated under the act were published in the Federal Register, Oct 1, 1937, pages 2395-2407 A synopsis was published in THE JOURNAL, Oct 16 1937, pages 63B-64B

False Advertising of Foods, Drugs, Diagnostic and Therapeutic Device and Cosmetics S 1077 was introduced by

Senator Wheeler of Montana "to amend the act creating the Federal Trade Commission, to define its powers and extend its jurisdiction and for other purposes" As introduced, it had no reference to foods, drugs, diagnostic and therapeutic devices and cosmetics, it related to them exactly as it did to all other merchandise It proposed to extend the jurisdiction of the Federal Trade Commission, which prior to the enactment of this bill covered only "unfair methods of competition in commerce," so as to make it extend to all "unfair or deceptive acts and practices in commerce" The bill passed the Senate and in the House of Representatives it was referred to the Committee on Interstate and Foreign Commerce, of which Representative Lea of California is chairman Representative Lea referred the bill to a subcommittee of which he is chairman also, which already had before it a mass of legislation relating particularly to foods, drugs, diagnostic and therapeutic devices and cosmetics, including in it S 5, the Copeland Food and Drugs Bill, which had passed the Senate In the end, the provisions for the regulation of the advertising of foods, drugs, diagnostic and therapeutic devices and cosmetics which appeared in S 5, the Copeland bill, were taken from it more or less attenuated, and then incorporated in the bill now under consideration The bill, known as the Wheeler-Lea bill, was then enacted with other modifications and was approved by the President, March 21, 1938 Its enactment means, it is believed, the exclusion of adequate advertising provisions to control the advertising of foods, drugs, diagnostic and therapeutic devices and cosmetics from any of the bills relating to merchandise of any of those kinds

Elvix of Sulfanilamide-Massengill S Res 194 was introduced by Senator Copeland of New York, requesting the United States Department of Agriculture to transmit to the Senate a full report of the facts concerning the deaths that then had recently occurred from the use of "a drug known as Elvix of Sulfanilamide" shipped in interstate commerce and to submit "recommendations for any needed legislation on the subject" This resolution was agreed to A similar resolution, H Res 352, introduced by Representative Chapman of Kentucky, was agreed to by the House

In response to the foregoing two resolutions, the Secretary of Agriculture submitted a report to the Congress with suggestions for legislation Those suggestions were embodied in S 3073, introduced in the Senate by Senator Copeland A bill to safeguard the public health, and in a bill, H R 9341, introduced in the House of Representatives by Representative Chapman of Kentucky, A Bill to safeguard the public health against the distribution of drugs not generally recognized as safe for use Both bills propose to prohibit any person from introducing or delivering for introduction into interstate commerce any drug the composition of which is such that the drug is not generally recognized, among experts qualified by scientific training and experience to evaluate the safety of drugs as safe for use under the conditions prescribed, recommended or suggested in the labeling thereof, unless such person holds a certificate issued by the Secretary of Agriculture showing that the drug has been tested and has not been found to be unsafe for use under such conditions They propose to set up the machinery whereby the Secretary of Agriculture can discharge the duties imposed on him The Senate bill has been favorably reported by the Committee on Commerce, to which it was referred, and is now on the Senate calendar The House bill was referred to the House of Representatives Committee on Interstate and Foreign Commerce and is still before that committee The subcommittee of the Committee on Interstate and Foreign Commerce that has the matter in charge is endeavoring to incorporate this bill in the remnants of the Copeland Food and Drugs bill, S 5

Surgical Ligatures and Sutures H R 6359, introduced by Representative Bernard of Minnesota, and S 1629 introduced by Senator Walsh of Massachusetts, propose to exclude from interstate and foreign commerce any surgical ligature or suture unless prepared at an establishment holding a license issued by the Secretary of the Treasury and contained in a package marked with the proper name of the article, the name and address of the manufacturer, and the date of manufacture and license number of the manufacturer, and the date of expiration which the contents cannot be expected beyond reasonable time to yield their specific results These bills propose an amendment

to "An Act to regulate the sale of viruses, serums, toxins, and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes," approved July 1, 1902, and therefore were referred, respectively, to the House and Senate Committees on the District of Columbia.

No action has been taken on the House bill. The Senate bill was favorably reported and subsequently enacted by the Senate. It is now in the House of Representatives before the House Committee on the District of Columbia. Its enactment seems to be retarded by a desire on the part of certain persons in the Department of Agriculture to have jurisdiction over the production of surgical ligatures and sutures. The enactment of any pending legislation that gives the Secretary of Agriculture control over diagnostic and therapeutic devices will give him control over surgical ligatures and sutures, absorbent cotton, bandages, prosthetic apparatus of all kinds, surgical instruments and appliances, optical instruments and appliances, dental instruments and appliances, for they all come within the description of "devices" as that term is defined in pending bills. Strangely enough, too, one court has decided that a catgut ligature or suture is a "drug" and another has decided that a bandage is a "drug" within the meaning of the Federal Food and Drugs Act of 1906, as amended, decisions that are difficult for reasonable persons to follow.

Substitutes for Food and Drugs Act of 1906, as Amended. Six bills are now pending in the Congress, in addition to those referred to, to regulate the importation, production, manufacture, distribution and sale of foods, drugs, diagnostic and therapeutic devices and cosmetics. Only one seems to call for consideration here, S 5, introduced by Senator Copeland of New York, passed by the Senate, and now pending in the House of Representatives, before the Committee on Interstate and Foreign Commerce. The advertising provisions of this bill as has been pointed out, were transferred in an attenuated form to the Wheeler-Lea Federal Trade Commission bill, S 1077, which has been enacted. All pending bills relating to foods, drugs, diagnostic and therapeutic devices and cosmetics, except as has been described, are now before that committee and an effort is being made to evolve from them, chiefly from the remnants of the Copeland bill, S 5, and the Chapman bill, H R 9341, proposing to restrict the exploitation of untried drugs, a general foods, drugs, diagnostic and therapeutic devices and cosmetics bill. The results of the activities of the subcommittee having the matter in charge have been embodied in a "committee print," Committee Print No 4, but up to present writing the matter is still pending in the committee. The proposed legislation, as embodied in Committee Print No 4, seems to give priority to the claims of importers, producers, manufacturers, distributors and dealers in drugs and diagnostic and therapeutic devices over the claims and interests of consumers, and it may be seriously questioned whether the enactment of legislation, such as is formulated in Committee Print No 4 of S 5, would accomplish any good purpose. This legislation has been discussed at length during the year in pamphlets that have been widely distributed throughout the country and to all federal senators and representatives, but apparently without effect.

*Legislation Relating to Veterans*—H Res 325, introduced by Representative Rankin of Mississippi, and agreed to by the House, Aug 20, 1937, authorized the Committee on World War Veterans' Legislation or any subcommittee thereof to make a comprehensive survey and inspection of soldiers' hospitals and other veterans' administration facilities, including any hospital with which the government has a contract for ex-service men of any war in which the United States was engaged. The resolution required the committee to report its findings not later than Jan 3, 1938. By H Res 408 however, introduced by Representative Rankin, and agreed to Jan 28, 1938 the committee was given until Jan 3, 1939, to complete its labors.

According to the Annual Report of the Administrator of Veterans Affairs for the year ended June 30 1937, there were on that date under the control of the Veterans Administration 47,421 hospital beds and 16,225 domiciliary beds. Additions during the fiscal year 1938 will bring that number of hospital beds on June 30 1938 up to 53,264 and the number of domiciliary beds up to 16,998. Present plans contemplate the addition in the fiscal year 1939 of 2,352 hospital beds, but 238 beds are

to be abandoned, so that on June 30, 1939, if present plans are carried into effect, the number of hospital beds at the command of the Veterans' Administration will be 55,378 and the number of domiciliary beds will be 19,397. No funds were appropriated for hospital and domiciliary construction during the fiscal year ended June 30, 1937, but the administration prepared and placed under contract certain projects approved for accomplishment from the \$21,250,000 appropriation made Aug 12, 1935. On July 29, 1937, the Veterans' Administration Federal Board of Hospitalization approved the views and recommendations of the Administrator of Veterans' Affairs with respect to the matter of future policy concerning the construction of hospital facilities for veterans. Those views, as thus approved, were approved by the President, Sept 20, 1937. The administrator states his views and recommendations as follows:

Essentially the new policy provides (a) for the acquisition of as many additional beds as may be required to meet the peak load of the N P group by including each year under a separate appropriation heading sufficient funds to provide the anticipated number of beds at the time such estimates are submitted (b) that no additional beds be provided specifically for tuberculous cases, except as may be necessary to correct unsatisfactory local conditions or deficiencies and (c) that no general construction program be undertaken for the general medical and surgical group but that additional beds for this type be provided in those areas where the available beds are disproportionate to the military population such deficiencies to be met if possible through the use of other Government hospitals. *Annual Report of the Administrator of Veterans Affairs for the Year 1937 pages 3-4*

The Independent Offices Appropriation Act for the fiscal year ending June 30, 1939, carrying the appropriation for the Veterans' Administration, which is still in conference, proposes an appropriation of \$4,500,000 for additional hospital and domiciliary facilities for veterans. The act itself places no restriction on the character of the contemplated hospital construction, whether for general medical and surgical treatment or for tuberculous patients or neuropsychiatric cases. Its distribution will be determined, it is understood, by the policy of the administration outlined.

It is impossible to discuss in detail the various bills proposing appropriations for the construction of new hospitals for veterans. For general medical and surgical cases, 10,399 additional beds are proposed by thirty-nine bills, at a cost of \$43,385,000. For neuropsychiatric veterans, six bills propose to provide 1,894 additional beds, at a cost of \$6,950,000. For tuberculous veterans, two bills propose the construction of 400 additional beds, at a cost of \$860,000.

*Contract and Acting Assistant Surgeons, Spanish-American War*—H R 6498 was introduced by Representative Tinkham of Massachusetts, to provide pensions for persons who served under contract with the War Department as acting assistant or contract surgeons between April 21, 1898, and Feb 2, 1901. Women nurses who served under contract as army nurses in the active military service of the United States between the dates named are already entitled to service pensions, that is, pensions incident not to disability incurred in line of duty but disability arising out of age. Contract surgeons and acting assistant surgeons who served under similar circumstances are entitled to pensions only for disability traceable to duty. This bill proposes only to make the pensionable status of contract surgeons and acting assistant surgeons the same as that of female nurses. The House Committee on Pensions gave a hearing on this bill, at which the Director of the Bureau of Legal Medicine and Legislation spoke in support of it. Up to the present writing, however, the committee has made no report.

*Reorganization of the Executive Branch of the Federal Government*—United States Department of Health—Six bills were introduced in Congress proposing the reorganization of the executive branch of the federal government. The general purport of these bills was the vesting in the President of authority to allocate and reorganize the several existing bureaus, divisions and offices of the executive departments. The bills propose the creation of a Department of Welfare but none suggest the creation of a Department of Health, nor was it possible to arouse in the Senate or the House the slightest interest in such a project.

H R 8202 A Bill "to provide for the reorganization of agencies of the Government, to establish the Department of

Welfare, and for other purposes," well illustrates legislative procedure with respect to bills proposing reorganization. The House of Representatives Select Committee on Government Organization has for some time past been studying the entire matter. On Aug. 10, 1937, without previously having held public hearings, Representative Warren of North Carolina introduced this bill. It was forthwith referred back to the Select Committee on Government Organization, by which it had been proposed. On the same day that it was introduced, August 10, it was reported back without amendment, with a recommendation that it pass. On August 13 it was passed and went to the Senate. In the meanwhile, in the Senate two committees had been engaged in a study of reorganization, a Select Committee to Investigate the Executive Agencies of the Government, the primary interest of which seems to be to incorporate economy and efficiency in anything that might be proposed, and a Select Committee on Government Organization, operating apparently for the purpose of bringing about a reorganization by the President. H. R. 8202, which had passed the House of Representatives, was referred to the latter committee, of which Senator Byrnes of South Carolina is chairman. Through his courtesy the chairman of the Association's Committee on Legislative Activities and the Director of the Bureau of Legal Medicine and Legislation were given fifteen minutes each wherein to present the views of the American Medical Association in support of the creation of a Department of Health, but the time allotted was materially abbreviated by questioning by members of the committee. That committee, August 17, reported to the Senate a bill, S. 2970 with the recommendation that it pass. Subsequently a redraft of this bill, S. 3331, was introduced by Senator Byrnes of South Carolina, referred to the Senate Select Committee on Government Organization and by that committee reported to the Senate, February 15, with amendments. The bill passed the Senate March 28 but further consideration by the House of Representatives is necessary before final enactment. So far as medical interests are concerned, and so far as relates to the establishment of a United States Department of Health, this bill does not differ materially from the bill passed by the House of Representatives.

H. R. 8202, one of the reorganization bills, which has passed the House of Representatives, and S. 3331, now being considered by the Senate, both provide for the establishment of a Department of Welfare, with a Secretary of Welfare at its head. An Under Secretary of Welfare and two Assistant Secretaries of Welfare are to be provided. The duty of the Secretary of Welfare is defined as follows in S. 3331:

Sec. 401 (c) The Secretary of Welfare shall administer the laws relating to any agency or function transferred to or brought within the jurisdiction and control of the Department of Welfare pursuant to law which relate to public health and sanitation, the protection of the consumer, education, the relief of unemployment and of the hardship and suffering caused thereby, the relief of the needy and distressed, the assistance of the aged, and the relief and vocational rehabilitation of the physically disabled.

*United States Postgraduate Medical and Surgical College*—H. R. 9687, introduced by Representative May of Kentucky, March 1, 1938, is a bill "to establish a United States Postgraduate Medical and Surgical College and Research Institute, to provide properly trained medical, surgical, and health personnel for the Military, Naval, and Public Health Services to coordinate and improve health research activities of the Federal Government, and for other purposes." The college, to be designated as an institute, is to be under the control and administration of a board of regents, consisting of the Surgeon General of the Army, the Surgeon General of the Navy, and the Surgeon General of the Public Health Service and four members appointed by the President. The college is to provide medical, surgical and clinical facilities for the diagnosis and treatment of all types of illness, physical and mental disabilities for any person whose annual income is not in excess of \$1,000, except in police cases and in cases of emergency arising from accident. It is to establish and maintain a course of training and research in medical and surgical science and public health open to graduates of accredited medical and surgical colleges seeking training for army, navy and public health work, on designation of senators and representatives. The training is to extend over

a period of three years, students receiving \$1,200 a year while in training. Graduates are to have a preferred status in vacancies in the Army, Navy, and Public Health Service and must serve in one of the three services for four years, and when vacancies occur. This bill was referred to the House Committee on Interstate and Foreign Commerce, where it now is.

#### SOCIAL SECURITY AND INCOME TAXES AND STATE AND COUNTY MEDICAL ASSOCIATIONS

The fact that state and county medical associations might be liable for taxes under the Social Security Act and were required to prove their right to exemption brought to light the fact that many such associations were unaware of the possibility of a similar tax liability and obligation under the Federal Income Tax Acts. Such acts for many years past have imposed certain income taxes on associations and corporations generally and have then exempted certain classes of such organizations. The exemption, so far as state and county medical associations are concerned, is as follows:

"The following organizations shall be exempt from taxation under this title—

(6) Corporations, and any community chest fund or foundation organized and operated exclusively for religious, charitable, scientific, literary, or educational purposes or for the prevention of cruelty to children or animals, no part of the net earnings of which inures to the benefit of any private shareholder or individual and no substantial part of the activities of which is carrying on propaganda or otherwise attempting to influence legislation."

#### Income Tax Act of 1936, Section 101 (6)

The Commissioner of Internal Revenue, who is charged with the duty of collecting the federal income tax, has by regulation required that an organization claiming exemption shall file its claim with the collector of internal revenue in the collection district in which such organization will be required to pay income taxes if it is not tax exempt.

The general plan of tax liability for state and county medical associations under the Social Security Act is similar to that under the Income Tax Act, as set forth, except that exemption from tax liability under the Social Security Act does not depend on the nature and extent of the association's attempts to influence legislation. The Commissioner of Internal Revenue, who is charged with the duty of collecting taxes under the Social Security Act, has held that an organization that has established its tax-exempt status under the section of the Income Tax Act quoted will be presumed to be exempt under the Social Security Act also, but obviously the contrary is not necessarily true. An organization whose activities are substantially in the field of propaganda to influence legislation might be barred from exemption under the Income Tax Act and yet not barred under the Social Security Act.

The Bureau of Legal Medicine and Legislation has brought this matter to the attention of the several state medical associations and has given them full instructions as to procedure for themselves and their respective county medical societies. Some of them have established their tax-exempt status, but how generally efforts have been made toward that end and how successful such efforts have been is not known. The situation should receive the serious consideration of state and county medical associations, in order that they may bring themselves within the tax-exempt class if they are not already there and thus prevent the accumulation of taxes and tax penalties that must ultimately be paid.

#### SOCIAL SECURITY TAXES AND THE PHYSICIAN

The year 1937 marked the beginning of the active duties of physicians, together with all other taxable employers, under the Federal Social Security Act. The act imposes on employers, with certain exceptions, two distinct payroll taxes. With respect to these taxes a physician stands in a position no different from that of any other employer. Even the fact that his employees are physicians is not material. One tax is imposed only on employers of eight or more and is designed to provide so-called unemployment compensation for workers eligible for such benefits. The other tax is imposed on an employer and employee alike, even though there is only one employee, and is designed

to provide old age annuities for such workers as may ultimately be entitled to them. Not only must every physician employing one or more persons—as, for instance, another physician acting as his assistant on a part time or full time basis, or a nurse, or a reception clerk—pay this tax, but he must collect and remit to the collector of internal revenue the tax payable by his employees. The Bureau of Legal Medicine and Legislation, through editorials, comments and special articles published in THE JOURNAL, has endeavored to guide the medical profession through the mazes of their tax liability. Its efforts seem to have borne fruit, judging from the diminished number of requests recently received from physicians for advice and guidance with respect to these taxes.

#### STATE LEGISLATION

Through a legislative reporting service, the Bureau of Legal Medicine and Legislation receives daily when any state legislature is in session notices of bills of interest to the medical profession that have been introduced. Ordinarily such notices are received about the third day after the introduction of the bill and consist of only the number and title of the bill, the name of its sponsor, and the title of the committee to which it has been referred. Obviously, a state medical association that maintains its own legislative service at the state capital or has its headquarters there usually obtains such information more promptly than can the Bureau of Legal Medicine and Legislation in Chicago, but most of our state associations are not so fortunately situated. The Bureau, therefore, immediately on receipt of notice that a bill has been introduced reports its introduction to the president, the secretary and the chairman of the legislative committee of the state association immediately concerned. This reporting in triplicate enables the officers named to confer among themselves at once to determine the policy of their association with respect to the measure.

As soon as possible after the introduction of a bill, our legislative reporting service supplies a copy of it, and it is then analyzed by the Bureau in the light of the laws already in force in the state and of the policies of the American Medical Association. If the analysis shows anything of moment that may escape the attention of the officers of the state medical association, a letter stating the facts is immediately sent to the secretary of the association, copies of which are sent to the president and the chairman of the legislative committee, for their guidance. In any event an abstract of each bill is submitted to THE JOURNAL for publication, so that every Fellow of the Association and every subscriber to THE JOURNAL may know what legislation is pending in his own state. In this way, interested Fellows and members of the Association in every State, and subscribers to THE JOURNAL, learn what is going on more promptly than would otherwise be possible, for the state journals, with possibly a very few exceptions, appear only monthly whereas the service rendered by the Bureau, through THE JOURNAL, is weekly. A similar service is rendered as the bill progresses toward defeat or enactment, the Bureau receives from its legislative reporting service reports of action by committees and by either branch of the legislature and of the enactment or defeat of the bill, if it reaches a final vote. As has been pointed out, although a few state medical associations are so highly organized and fortunately situated as not to be in need of such service as is described to a large number of such associations the service seems to be of value.

After the close of each calendar year, the legislation that has been considered by state legislatures that met during the year is summarized and the result published in THE JOURNAL to keep the medical profession of the country informed of the trends of legislation and legislative opinion in the various legislative fields of medical interest and of the successes and the failures of the several state associations in promoting or defeating legislation in which they severally have been interested. The summary of state legislation for 1937 was published in the Organization Section of THE JOURNAL February 5, 12 and 19 of the current year. A brief discussion of some of the more important state legislation considered during 1937 follows:

*Laws Relating to the Healing Art*—Basic science acts were passed in 1937 in Colorado, Michigan and Oklahoma. Unfortunately the boards of examiners authorized by the Colorado and Oklahoma laws each include a physician, an osteopath and a chiropractor, and not such truly nonsectarian boards as a basic science law usually provides. A chiropractic practice act was passed in Delaware, and chiropractors there are now licensed by an unsupervised and uncontrolled board of chiropractic examiners, without even such restraint as a basic science law might impose, for Delaware has no such law. With respect to naturopaths a similar situation exists in South Carolina, where a naturopathic practice act was enacted and an independent naturopathic licensing board created. Medical practice acts were amended or supplemented in Arkansas, California, Connecticut, Delaware, Kansas, Minnesota, Nebraska, Nevada, New Hampshire, Oregon, Pennsylvania and Vermont. Osteopathic practice acts were amended in Kansas, Michigan, Missouri, North Carolina and Pennsylvania. Chiropractic practice acts were amended or supplemented in Connecticut, Florida, Idaho, New Hampshire, North Carolina and Oklahoma. Details concerning all such legislation can be found in the Organization Section of THE JOURNAL (Feb. 5, 1938, pp. 59B-67B).

*Medical and Hospital Lien Law*—A lien law was enacted in the state of Washington which authorizes liens for physicians and hospitals treating and caring for persons injured through the negligence of others. The authorized liens may cover on all rights of action, claims, judgments or compromises accruing to the patient because of his injury.

*Health Insurance*—Bills proposing the establishment of systems of compulsory state health insurance were considered in 1937 in Massachusetts, New York, Pennsylvania, Rhode Island and Wisconsin, but not one was enacted. All were patterned closely after the so called Epstein social security bill for health insurance.

*Narcotic and Hypnotic Drugs*—The uniform narcotic drug act with but little modification, was enacted in 1937 in Arkansas, Michigan, Minnesota, Missouri, Montana, Nevada, Tennessee, Texas and Wyoming. Thirty-two states have now adopted legislation conforming substantially to the uniform act. Bills masquerading as the "uniform narcotic drug act," but differing from it in important particulars were enacted in Idaho and Iowa. Neither of these laws limits to any stated amount the quantity of opium and coca leaves and their derivatives and compounds that a person can buy without a prescription provided he purchases the drug in so called exempt preparations. Similarly impotent laws have been enacted in five other states since 1934. So widespread has been this movement toward emasculating narcotic legislation that a question arises as to whether it has not been directed from some central agency interested in removing restraint from the sale of the narcotic drugs named. The distribution of narcotic drugs through so-called exempt preparations has assumed such proportions as to call for drastic measures to curb it, rather than to justify or excuse any breaking down of the law in order to facilitate the widespread sale of such preparations.

The uniform narcotic drug acts in force in Nebraska, New Mexico and South Carolina were amended in 1937 so as to classify cannabis among the narcotic drugs covered by them. In Arkansas and Tennessee laws were enacted prohibiting the possession sale or distribution of cannabis so called marijuana, except sale and distribution on the written prescription of a physician, dentist or veterinary surgeon.

The sale and dispensing of certain hypnotic and somnifacient drugs were limited by law in two states in 1937 to sales and dispensing on the prescription of licensed physicians, dentists and veterinarians. In Rhode Island the restrictive law covers barbituric acid, barbituric acid, barbituric acid, paraldehyde, chloral or chloral hydrate and chlorobutanol. In the South Carolina law barbiturates or barbiturate compounds are named. A Texas law imposing limitations on similar sales was repealed.

*Hospital Service Corporations*—Corporations to provide hospital care for their members and subscribers on a so called nonprofit basis were enacted during the year in California, Georgia, Maryland and Pennsylvania.

**Workmen's Compensation**—Legislation relative to occupational diseases was enacted in Delaware, Indiana, Michigan, Ohio, Nebraska, Pennsylvania and Washington. The Indiana act provides compensation for disability resulting from any occupational disease arising out of and in the course of employment. The laws of the other states named include lists of the diseases for which benefits may be paid. Laws increasing the medical, surgical and hospital service to be rendered at the employer's expense were enacted in Indiana, Iowa, Kentucky, Pennsylvania and Rhode Island. Pennsylvania and Vermont, by laws enacted in 1937, permit an injured workman to select his own physician under certain stated conditions.

**Eugenic Marriage Laws**—Laws requiring as a condition precedent to the issue of a marriage license that both parties to the proposed marriage present certificates of freedom from venereal disease, signed by physicians, were enacted in 1937 in Illinois, Michigan and New Hampshire. Prior laws in Oregon and Wisconsin, requiring such certificates from prospective bridegrooms only, were amended to require similar certificates from the prospective brides also.

**Vaccination**—Successful immunization against smallpox and diphtheria was made a condition precedent to the admission of children to school by a West Virginia statute enacted during the year.

**Contraception and Venereal Disease Prophylactics**—California, Idaho, Nebraska and Utah during the year prohibited by law the sale or other distribution, except by a licensed physician or by a licensed pharmacist, of appliances, drugs and medicinal preparations intended or having special utility for the prevention of conception and of venereal diseases. These laws limit generally the sale of such appliances, drugs and preparations to such as have been approved and listed by some designated state agency as conforming to the standards of quality and labeling stated in the law.

#### STATE LEGISLATION BY INITIATIVE

The constitutions of some states, chiefly states in the West and the Southwest, provide for the enactment of legislation by the people directly, through their own votes at the polls, by what is sometimes referred to as the initiative system, so as to enable them to evade the considered judgement of their elected representatives in their respective legislatures. In those states too that authorize legislation through the initiative, provision is made also by means of the referendum for overriding the action of the legislatures by referring to the electorate at the polls measures that may have been enacted by the legislature, thus giving the electorate a chance to reverse the action of its elected legislators. Procedures under the initiative and referendum have been resorted to on several occasions heretofore, generally to accomplish some purpose that did not and would not appeal to the best judgment of the legislature. The chiropractic practice act and the osteopathic practice act of California were enacted in this way in 1922, and under the constitution of the state can be changed only by another initiative procedure, in that state the legislature is powerless to afford relief against a law enacted through the initiative, but if relief is to be obtained it must be obtained through another initiative. In 1922 also an initiative in California to prevent animal research, was defeated through the energetic action of the California Medical Association. More recently the chiropractors of Oregon endeavored through the initiative to organize a radical and an entirely new system of control of the practice of the healing art that would have broken down all safeguards, but the electorate of that state promptly defeated the measure. At the present time initiative measures are pending or have recently been disposed of in three states: California, Colorado and Oklahoma.

In Colorado an initiative measure was proposed by the chiropractors of the state to remake the laws of the state relating to the practice of the healing art. Through the vigorous action of the Colorado State Medical Society, it was demonstrated after the petition had been presented to the secretary of state for incorporation in the ballot that is to be presented in November next, that many of the signatures on the initiative petition were forged and that there were other substantial

irregularities. Proof of such irregularities in the initiative petition barred the proposed initiative measure from the ballot, and by the time the proof was offered it was too late for the proponents of the proposed initiative measure to go over the field and to correct their mistakes, even if they had been otherwise able to do so. The Colorado initiative has therefore been definitely defeated for the present.

In California the pending initiative measure is designed to hinder the use of living dogs for purposes of research. It proposes to forbid the delivery of any living dog from any person in the state to any institution of learning or research for purposes of study or instruction. The people of the state have formed an organization to combat the arguments of the proponents of this measure, and the issue will be fought out at the polls in November next.

In Oklahoma the initiative proposes, principally, so to amend the medical practice act as to permit hospitals and clinics organized on a mutual or cooperative basis to enter into contracts for hospital or medical services and to prevent the board of medical examiners from disciplining licensed physicians who cooperate in such schemes.

#### MALPRACTICE

The American Medical Association is without exact information concerning the frequency of demands on physicians and of suits against them, for damages alleged to have been suffered by reason of malpractice, or of the causes and results of such demands. In the absence of such information, advice as to measures of prevention must be based on speculation rather than fact, and there is no available method for determining the results of such advice.

Some medical associations have interpreted the ruling of the joint committee made up of members of the Committee on Ethics and Grievances and the Committee on Unauthorized Practice of the American Bar Association, in the Ohio State Medical Association case, as barring a medical association from cooperating at all with members in defense against malpractice suits. That is not the case. So long as the medical association limits its activities to the medical aspects of the case, it is certainly within its rights. The medical association itself is entitled to legal aid in determining its own course. The line of demarcation comes if and when it undertakes to determine for the member who has been made the victim of a demand or a suit the attorney whom he shall employ or to aid that attorney by furnishing legal assistance. It is believed that a properly organized committee on grievances, by whatever name it may be known, can properly hear the evidence of a member who has been threatened with a suit or is being sued and of such witnesses as he may desire to produce. It may hear also if the patient is willing, the patient and each witness as he may offer. The committee for the medical association can then, with the assistance of its own counsel, determine for its own guidance whether the physician involved in the case exercised due diligence, ordinary knowledge and skill, and his best judgement, and whether he respected the patient's confidence within the limits required by good professional practice. In the light of the information thus gained the medical association can determine whether it will or will not cooperate with the physician through the furnishing of expert medical witnesses and, it may be, an expert medical assistant for counsel. Such a committee can also keep a record of such claims and suits as are brought to its notice and of the ultimate results, can attend trials, and can generally study and investigate the malpractice situation within its own jurisdiction, including insurance rates and methods of insurance companies, and it then can determine what action can be best taken to limit the number of malpractice suits and the amounts of damages awarded.

#### ANIMAL EXPERIMENTATION

The District of Columbia has no legislature. Its board of commissioners has limited authority in the way of making regulations, but laws for the District are enacted by Congress. In its capacity as legislature for the District of Columbia the Congress has the following two bills before it: H. R. 11818, introduced by Representative Quinn of Pennsylvania, and S.



propose "to prohibit experiments upon living dogs in the District of Columbia" The Senate bill was referred to the Senate Committee on the District of Columbia, where it now is The House bill was referred to the House Committee on the District of Columbia and a hearing has been held on it, but the committee has made no report The purpose of these bills is, it is understood, to provide an entering wedge whereby, after experimentation on living dogs has been prohibited, experimentation on all other animals will in like manner be prohibited and whereby, after any legislation of this class has been enacted by Congress for the District of Columbia, efforts will be made to procure similar legislation in the several states, the legislatures of which will supposedly be greatly impressed with the fact that Congress has enacted a law of this type

As noted, an initiative measure is pending in California that if enacted will hinder the use of dogs for experimental purposes

#### COOPERATION APPRECIATED

On behalf of the Bureau of Legal Medicine and Legislation, the Board of Trustees expresses appreciation of the cooperation that the Bureau has received from the several state and county medical associations of the country and from individual physicians

#### Summary

1 *Federal Legislation*—(a) Since the last report of the Board to the House of Delegates, the Congress has enacted the National Cancer Institute Act, the Marihuana Tax Act of 1937, An Act authorizing the Bureau of Mines to manufacture and sell helium gas for medical and other nongovernmental uses, and an act devolving on the Federal Trade Commission jurisdiction over the advertising of foods, drugs, diagnostic and therapeutic devices and cosmetics

(b) Five proposals are pending contemplating either a federal investigation concerning health insurance or the enactment of definite schemes for the establishment of health insurance No action has been taken on any of these proposals Another similar measure proposes the establishment of a United States Postgraduate Medical and Surgical College to provide not only postgraduate courses in medicine but also medical and surgical services for persons whose annual incomes are not in excess of \$1,000 An investigation of the activities of the American Medical Association and of state and county associations in connection with Group Health Association, Inc., is proposed by a pending resolution

(c) Bills are pending, some of which are receiving consideration, contemplating federal subsidies to aid the states in general health activities, in the medical care of transients, and in the control of venereal diseases and tuberculosis Other federal proposals contemplate the establishment of hospitals for the "medically needy," the use of federal moneys for the prevention and cure of infantile paralysis, blindness, deafness and other social diseases, and the regulation of interstate commerce in goods produced under conditions exposing employees to the hazards of silicosis and related dust diseases

(d) After the Copeland food and drugs bill, S 5, was stripped of all provisions relating to advertising and they were transferred to the Federal Trade Commission bill that was enacted, efforts were begun to evolve a new measure from the remnants of the Copeland bill and from other proposals relating principally to drugs not generally recognized as safe for use Indications are that the new measure may possibly give priority to the interests of importers, producers, manufacturers, distributors and dealers over the interests of consumers

(e) The House Committee on World War Veterans' Legislation is continuing its investigation of veterans' hospitals At the same time proposals for the construction of additional hospital facilities for veterans of the World War continue to increase The discrimination that has long existed against contract surgeons of the Spanish-American War remains uncorrected

(f) Efforts to arouse interest in the establishment of a Federal Department of Health have been unproductive Pending reorganization proposals contemplate the creation of a Department of Welfare in which will be grouped the health activities of the government

(g) Legislation proposing to prohibit experiments on living dogs in the District of Columbia is pending If this legislation is enacted it will serve as an entering wedge and will facilitate the enactment of similar legislation by the several states

2 *Social Security Act*—State and county medical associations are subject to the taxes imposed by the Social Security Act and by the Federal Income Tax Act unless they establish their exempt status to the satisfaction of the Commissioner of Internal Revenue Individual physicians, if employees or employers, are subject to the social security taxes

3 *State Legislation*—(a) Through a legislative reporting service the Bureau keeps constantly in touch with state legislation of medical interest and promptly advises state associations of legislative proposals of particular medical interest New basic science laws were enacted in Colorado, Michigan and Oklahoma Compulsory state health insurance proposals were made, but not enacted, in Massachusetts, New York, Pennsylvania, Rhode Island and Wisconsin Other legislation of medical interest enacted in one or more states relates to narcotics, medical liens, hospital service corporations, eugenic marriage, vaccination, contraceptive devices, chiropractic, naturopathy, osteopathy and medical practice acts generally

4 *Initiative Measures*—In states where the enactment of legislation by the people directly through the medium of the initiative measure is possible, opponents of scientific medicine are seeking to give effect to this opposition through the approval of initiative measures by the people Colorado deflected a chiropractic initiative proposal that would have utterly disrupted the medical licensure scheme in the state Other initiative measures are pending in California, to prohibit the use of living dogs for experimental purposes, and in Oklahoma, to permit, among other things, hospitals and clinics to enter into contracts for the supplying of medical care

5 *Malpractice*—State medical associations can and should assist members against whom unjust claims based on alleged malpractice are made Such assistance, however, should be so confined as to avoid any encroachment on the field of the practice of law

#### Bureau of Health and Public Instruction

##### RADIO PROGRAM

An important activity of this Bureau is that concerned with a weekly broadcasting program carried out with the fine cooperation of the National Broadcasting Company The dramatized radio program initiated in 1935 finished its second successful season in June 1937, with a series of broadcasts based on the annual scientific assembly at Atlantic City The weekly broadcasts dealt with various subjects under the head of "Medical Emergencies and How They Are Met" In October 1937 a new type of program was undertaken—a special program keyed to the needs of health classes in senior and junior high schools Education by radio has progressed from the technic of merely broadcasting material at the listener and hoping that it may do some good to recognition of the fact that the best programs are what are known as 'participating' programs, whereby the listener's interest is enhanced and his chances of learning are increased through doing something instead of merely listening

It was apparent from a general knowledge of the health education situation in schools, that at the high school and junior high school age level existed the greatest need and therefore the greatest opportunity for supplementing health

teaching in the schools, by means of a dramatized radio program with appropriate supplementary material through which participation could be stimulated. HYGIEA seemed the logical channel for the publication of such supplementary matter. The Board of Trustees authorized such a program. A radio supplement department was inaugurated in HYGIEA in October 1937 timed and coordinated with the radio dramatizations for that month. This has been continued each month. The HYGIEA material consists of briefs of the four programs constituting the group to be broadcast during the month corresponding with each issue of HYGIEA.

Shortly after the program was publicly announced the New York office of the National Broadcasting Company sent a representative of the Johnson Publishing Company, Richmond, Va., to the American Medical Association to inquire about publishing and distributing to the schools a workbook for the use of pupils listening to the program. Such a workbook was prepared by Drs. Bauer and Teschner and published by the Johnson Publishing Company, the publisher to undertake its distribution in the schools.

At the end of 1937, twelve programs in the series had been broadcast and a great deal of interest had been shown by educators. Public schools in a number of communities, including New York City, were using the program. Deputations from the State Department of Health of Illinois, from the Chicago city schools and other groups representing educators had visited the studios and witnessed the broadcasts. The evidence at hand is to the effect that the program as conceived fills a real need in the health curriculum of junior and senior high schools and that it has not lost its appeal to adult listeners outside the schools. The broadcasts for the fall and winter season of 1938-1939 will begin earlier than heretofore.

The radio library of the American Medical Association, which is maintained for the use of state and local medical societies, and organizations whose use of the material such societies are willing to sanction, has been used more heavily this year than in 1936, the number of scripts distributed being 4,589 for 1937 as compared with 3,388 in 1936. In 1937, seventy-two county medical societies used the scripts as compared with thirty-four in 1936, and thirteen state medical associations as compared with five in 1936.

The scripts have been kept up to date by dropping seventy-six older manuscripts and adding sixty new ones, leaving a total of 867 titles, of which 365 are for fifteen minutes, 188 for ten minutes and 300 for five minutes.

#### PROTECTION OF RESEARCH

The principal activity of those who oppose the use of animals for the purposes of research, aside from routine publications and propaganda, continues to be centered in Massachusetts and California, though effort has been made to secure the enactment by congress of legislation to apply to the District of Columbia.

For several years California antivivisectionists have been attempting to render impossible the use of dogs and cats from public pounds. Failing to get legislation through ordinary channels, they have resorted to the initiative provided for in California law. A petition for a so-called Humane Pound Law was circulated and received sufficient signatures to insure a place on the ballot for a vote in November 1938. The law as drawn would provide that medical schools or organizations participating in medical research could not receive dogs or cats from public pounds. Such a law would cripple medical research. Moreover, it is merely an entering wedge. Instead of covering only cats and dogs it would soon include, by amendment, all other animals. On the basis of success in California, the antivivisectionists would soon be seeking similar legislation in other states and, because of success in California, would be more liable to succeed elsewhere. The American Medical Association Committee for the Protection of Medical Research and this Bureau have attempted to be as helpful as possible in opposing the enactment of the so-called Humane Pound Law.

The Bureau made its usual donation in May to graduating medical students of complimentary copies of the pamphlet

Animals in Research, including the article "The Dogs Go to the Relief of Suffering," by Cannon and Drinker and "The Ethics of Animal Experimentation" by John Doney.

#### COOPERATION WITH LAY ORGANIZATIONS

*National Congress of Parents and Teachers*—Progress continues toward more widespread use in many localities of the physicians' own offices for the examination of children in the Summer Round Up. More localities are making arrangements to have physicians paid for their services as examiners. As authorized annually by the Board of Trustees, 300,000 examination blanks were printed, of which one half were donated by HYGIEA, the Health Magazine, and the other half by the national Congress.

At the annual meeting of the Advisory Committee for the Summer Round-Up, the following resolution was adopted:

Glasses should not be fitted on the basis of such an examination (the eye examination in the Round Up). An adequate examination for diagnosis of eye disease or defects of vision or to determine the necessity for glasses can therefore be performed only by a licensed physician.

During the year a survey was conducted by the Bureau of Health and Public Instruction of the opinions of fifty widely scattered general practitioners personally known to the Director with relation to the blank used in the Summer Round Up of the Children. A few complaints had been received to the effect that the blank was too time consuming. A survey of opinion, however, brought forth thirty-five replies out of fifty letters and, of these, twenty endorsed the blank as it stood and fifteen recommended various changes, none of them of major significance. Only one letter indicated opposition to the whole idea of the Summer Round-Up, designating it as an approach to state medicine.

*General Federation of Women's Clubs*—A meeting of the advisory committee was held at Washington in October. The meeting was largely routine. A special intra organization program was planned for educating the club women in syphilis. Routine progress was reported in the cancer education campaign, the maternal and child welfare campaign and other health interests. The community health study was reported to have attracted practically no attention among local women's clubs after the first year (1935).

*4-H Clubs*—At a meeting of the National Committee for Boys' and Girls' Club Work, better known as 4-H Clubs, in December 1937 there was offered rather severe criticism of the committee and its methods with special reference to unwarranted handling of the "healthiest boy" and "healthiest girl" contests local, state and national. The Director of the Bureau, as a member of the committee, had previously offered objections to the methods used. This new criticism came from a subcommittee representing the United States Department of Agriculture and the Association of Land Grant Colleges.

During the year the Director of the Bureau challenged the authenticity of certain statements in relation to tuberculosis published in *4-H Club News* without consultation with the only physician on the committee, namely, the Director of the Bureau. It has been agreed that subsequent statements, medical in character or having a medical bearing, will be submitted for approval prior to publication.

*Joint Committee on Health Problems in Education*—The Joint Committee representing the National Education Association and the American Medical Association, under the chairmanship of Thomas D. Wood, M.D., has continued its work.

The principal activity in 1937, aside from the publication of routine technical reports, was the organization of a symposium on school health problems in connection with the meeting of the American Medical Association at Atlantic City. This symposium, though arranged too late to receive a place in the printed program of the American Medical Association meeting, nevertheless attracted several hundred physicians and the proceedings were published in their entirety in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*. This is the first program connected with the Joint Committee's work which has been a part of the American Medical Association meeting. Its success indicates the desirability of repeating it if not annually at least frequently.

During 1937 the American Physical Education Association, an organization of teachers of physical education and of athletic coaches and including some physicians, became merged with the National Education Association Department of Health and Physical Education. The new organization is known as the "American Association for Health and Physical Education"—A Department of the National Education Association. It is organized in three coordinate divisions dealing respectively with physical education, health and recreation. In each division are special sections. The medical section is in the division of health. Membership in the section is limited to members of the American Medical Association in spite of the fact that effort was made at the meeting to open the membership of the section to physicians employed in school health work even if not members of their local medical societies.

*American Public Health Association*—The Director of the Bureau, having finished his term as chairman of the Section on Health Education of the American Public Health Association, remains for five years a member of the section council. Relationships of the Bureau with the section are quite satisfactory.

*United States Children's Bureau*—Very little complaint has been received at headquarters relating to the functioning of Social Security health programs administered by state health departments under grants from the Children's Bureau. The attitude of present officers of the Children's Bureau is apparently friendly and cooperative. It appears that efforts will be made to enlarge the appropriation for maternal and child health work as indicated in a conference called at the Children's Bureau (October 19) at which opinion of representatives attending was solicited as to the advisability and necessity of larger child health and maternal health appropriations.

*American Social Hygiene Association*—The outgrowth of the interest in syphilis dramatized by Surgeon General Parran on his appointment to be surgeon general of the United States Public Health Service continues at a high level. A number of books on the subject have appeared. *HYGEIA* has carried numerous articles, some of which have been made into reprints and are selling fairly rapidly. A National Social Hygiene Day was held in February 1937, being devoted largely to public addresses and articles in newspapers on the topic of syphilis. A second Social Hygiene Day is planned for February 1938 for the purpose of raising \$500,000 to support the increased demands for services on the American Social Hygiene Association. In this project, state medical societies and local medical societies are being asked to participate. The Bureau has attempted, through the columns of the Organization Section of *THE JOURNAL*, to keep the profession informed relative to genuine versus pseudo social hygiene organizations.

#### COOPERATION WITH STATE AND COUNTY SOCIETIES

The Bureau continued, as in the past, to cooperate with county medical societies and with outside organizations by attempting (a) to function as a clearing house for health information and ideas and (b) to establish and further cordial relationships between the medical profession and other organizations working for similar purposes. For these purposes the Director and the Assistant Director attended twenty conference meetings.

#### PERSONAL APPEARANCES

Personal appearances made by the Director in 1937 totaled eighty-seven addresses in addition to conferences attended. The Assistant Director made thirty-eight addresses. The total was 125. This is 36 per cent greater than in 1936. These appearances involved practically 40,000 miles of travel by railroad, automobile and busses. Appearances were made in twenty-four states. Forty engagements had to be declined because of conflicting schedules and for other reasons.

#### HYGEIA CLIPPING AND LOAN COLLECTIONS

The clipping loan service of *HYGEIA* material made into convenient collections and accompanied by a proposed outline for a speech continued in 1937 to be a notable success. The number of loan collections sent out in 1936 was 230 and the distribution covered thirty-eight states. In 1937 the distribution was 375 collections. In two years physicians in every state in the union

have been served, except in Maine and Nevada. The state of New Jersey, with the aid of recent back numbers of *HYGEIA* and of pamphlets of the Bureau of Health and Public Instruction, Medical Economics and Investigation, has established its own loan collection service for physicians within the state and indications are to the effect that the Philadelphia County Medical Society will do the same thing in the same way. The Bureau will cooperate by referring to the appropriate local chairman all requests from New Jersey and, perhaps, from Philadelphia. This decentralization will reduce the apparent service rendered by the Bureau direct, but it is believed that it represents sound organization policy.

#### BUREAU PUBLICATIONS

The pamphlet publications of the Bureau were maintained as in past years by revising, dropping or adding as demand seemed to indicate.

The director of the Bureau contributed eighteen items and the Assistant Director three items to *THE JOURNAL* in 1937, including one editorial, eight current comments, one news item, two queries and minor notes, and nine items for the Organization Section. The Symposium on Health Problems in Education arranged at the Atlantic City session on behalf of the Joint Committee was published in full.

Publications originating in the Bureau but appearing in periodicals published elsewhere included twenty-seven magazine articles.

#### EXHIBITS

The Bureau cooperated, as in former years, with the Bureau of Exhibits in the preparation of exhibit material for use on various occasions.

The Bureau continues to furnish material for the numerous local traveling exhibits prepared by the American Medical Association Bureau of Exhibits and receives in return much valuable assistance from the Bureau of Exhibits. Close cooperation between the two bureaus is maintained at all times.

During 1937 the Directors of the two bureaus collaborated in preparation of a book entitled *Health Education of the Public*. With a foreword by the Editor of *THE JOURNAL*, this book was published by the W. B. Saunders Company.

#### Summary

The work of the Bureau of Health and Public Instruction has proceeded along established lines but reached a high peak in 1937. The dramatized radio program conducted with the cooperation of the National Broadcasting Company completed its second successful season in 1937. The nature of the program was changed in that it was particularly directed to the needs of students in senior and junior high schools, though an effort was made to maintain appeal to general public audiences. The radio library of the Bureau has been maintained for the use of state and local societies, and the library material was much more widely used in 1937 than in any preceding year.

The Bureau has cooperated as fully as possible with official agencies concerned with the protection of scientific research.

The Director of the Bureau has served as a member of official committees of a number of important lay organizations, including the National Congress of Parents and Teachers, the General Federation of Women's Clubs, the 4-H Clubs, the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, the Children's Bureau of the U. S. Department of Labor and other important organizations. The Bureau has also cooperated closely with the Bureau of Exhibits in the preparation of exhibit material.

The Director and the Assistant Director of the Bureau have appeared before a larger number of public audiences than in any previous year. The educational publications issued under the direction of the Bureau have been widely distributed. The number of inquiries received from lay persons increased during the year by approximately 15 per cent.

## Bureau of Medical Economics

The movement toward the socialization of the necessities of life has thus far concerned itself almost entirely with but one of those necessities—medicine. Those who propose various devices to socialize medicine seem to assume that a very large percentage of the population is not receiving needed medical care. It is also assumed by these social reconstructionists that radical changes in the methods of distributing medical services are necessary if those who are not now receiving medical care are to be provided with such care. Moreover, these same reformers, many of whom are not medically trained, believe that the radical changes which they urge can be made without affecting the quality of medical care, without disrupting the processes of medical education and research, and without disturbing the close personal relationship between the patient and his physician—all of which are essential to medical progress and continued improvement in public health.

It appears that the proponents of drastic departure from the course of private medical practice are interested chiefly in the methods of organization, distribution and control of medical services which will provide a greater abundance of cheap medical care. They fail to consider the inevitable result which the cheapening and mechanization of medical services will have on the prevention and relief of illness. None of the utopian schemes that have been proposed, except a system of complete state medicine, would include all income groups of the population. Thus the problem of providing medical services for the indigent, the unemployed and those suffering from certain chronic conditions would remain as a separate task to be met and financed in an entirely different manner.

The many health and medical surveys made during recent years have recorded various percentages of the population in need of medical care. If these percentages are accepted as reasonably correct, only from 5 to 10 per cent of the population appear to be in need of medical care which, presumably, they are not now receiving. These studies also reveal that about one half of the population report no illnesses in any one year. The amount of medical services which this apparently well half of the population might properly use cannot be accepted as a condemnation of the present method of providing medical services. This is evidenced by the fact that more than 90 per cent of the persons in the sick half of the population are attended by physicians. Further evidence is the constant decrease in morbidity and mortality rates, which makes the United States one of the most healthful countries in the world. If interpreted literally, these figures do not present an appalling lack of medical care such as is usually reported by proponents of new methods of medical practice, who state that from one fourth to one half of the population is not receiving needed medical services. The available figures which purport to show the unfilled need for medical care and the statements made by many social reformers are obviously in sharp disagreement and prompt some queries as to the accuracy and source of information.

The American Medical Association has consistently maintained an interest in the availability and the quality of medical services. The several councils and bureaus of the Association have as their central function the protection of the quality of medical service by an appraisal of the various elements entering into that service. The American Medical Association has held itself ready and willing to discuss with qualified agencies the questions of need for medical services and the appropriate means to provide such needs. Thus far, only one direct official request for such a discussion and coordination of effort has come to the Association—that from the American Public Health Association.

## STUDY OF MEDICAL CARE

The Board of Trustees, following a meeting of its Executive Committee with the representatives of the American Public Health Association in December 1937, passed resolutions which called for a determination of the need for medical services and, based on these findings, suggestions of preferable procedures to meet the need of persons in every county in the United States. This project is but a furtherance and extension of the encouragement which the Association has previously given to

state and county medical societies to develop means by which all persons might readily obtain medical care at fees commensurate with their ability to pay. Already, 250 or more county medical societies have endeavored to meet their local needs by some arrangement to make medical service more readily available to the indigent and low income groups. Many of these medical society arrangements have been in operation a sufficient length of time to permit some evaluation of their desirable and undesirable features. Of considerable significance is the fact that each locality apparently requires a different arrangement to organize or coordinate its medical services.

This new project calls for concerted action on the part of medical societies to determine medical needs by seeking the assistance of individuals, agencies and organizations that have an interest in or are actually endeavoring to supply medical care. If thoroughly and conscientiously carried out, such a project should give much needed dependable information. When the county medical societies, in cooperation with the other agencies and organizations concerned with medical services, shall have collected the data pertaining to need for medical services, it will then be possible to recommend preferable procedures intended to meet that need. It is logical and desirable for the county medical society to serve, with the guidance of the state association, as the coordinating unit for whatever organizational arrangements may be devised. Many medical societies will probably desire some suggestions as to the methods that have shown the most promise of fulfilling needs in other communities. It is suggested that at least one of each type of the county medical society medical service plans now in operation should be carefully examined at once so that the American Medical Association will be in a position to give the latest and most complete data concerning organization arrangements for medical services to those county medical societies that request assistance.

There can be no question that this project gives promise of a thoroughgoing analysis of the adequacy or inadequacy of the present distribution of medical services and is a significant opportunity for medicine to devise efficient and ethical means to distribute medical services to all people on the basis of need rather than to small groups within the population according to political expediency or special interests. With real and sincere cooperation from individuals, agencies and organizations concerned with medical services in each community, the success of the project will be assured.

## NEW FORMS OF MEDICAL CARE

Within the past year a great many plans for organizing medical services have been proposed or actually inaugurated. Most of these plans are conceived with the idea of offering "low cost" medical services to special groups of persons. Industrial medical care plans are offered for employees of a single company, cooperative or group health associations for groups of employees and their dependents, student health services for students, lodge plans for members of fraternal orders and resettlement medical care plans for clients of the Farm Security Administration, and other types of group payment or insurance plans are held out as essential to provide medical services for particular groups of persons.

It is possible to organize medical services either geographically or by some special grouping of persons. The use of the two methods of organization at the same time creates overlapping and duplication. The development of numerous small administrative units for the provision of medical services to groups of persons selected on some basis such as occupation or social interests is of very questionable wisdom. The geographic method of medical practice, by which all the residents in a community obtain their medical care directly from the physicians in that community, has proved its superiority over any other method yet devised. Under this method of distributing medical services, the patient is considered in the perspective of a human being subject to his entire environment rather than as a member of some restricted or cultural group. The particular interests of special groups of individuals in the community, such as employees, students, the indigent and the low income group, can be met by slight adjustments in the existing method of providing medical services and without necessitating a special administrative organization.

The reason prompting the development of isolated plans for medical care is the notion that some organizational arrangement will result in low cost services. A number of fairly reliable surveys have shown that medical services cost, on the average, about \$25 to \$30 per person annually. It is hardly possible that any organizational arrangement can lower this average cost except by excluding many services or by offering medical services of inferior quality. As a general rule, such plans do not offer the complete services claimed but exclude many expensive services and depend on special charges for necessary finances.

#### CONTRACT AND CORPORATION PRACTICE

Most of the plans offered under this head are nothing more than contract practice arrangements whereby physicians are induced to sell their services to a promoter, who in turn sells the services to prospective patients. The introduction of a third party in the provision of medical services transfers control over the quality of medical services to that third party. In most instances this third party is a corporation or association not amenable to examination of its ability to provide a good quality of medical care and responsible only to the extent of cash resources. The quality of medical services cannot be maintained if individual physician responsibility, assured by high standards of medical education and licensure and sustained by professionally ethical regulations of societies of physicians, is replaced with the limited nonmedical and usually nonethical responsibility of corporations and associations. Such agencies give no assurance that they will foster a medical service equal to that now given by duly qualified physicians in private practice.

It is unnecessary to disrupt the professional practice of medicine into a series of commercial institutional enterprises. Those who attempt to do so are too often motivated by false notions concerning the methods of distributing medical care, by unreliable or incomplete information concerning the lack of medical care, by a desire to make a place in the sun for themselves, or by selfish interests such as avoiding increases in wages and attempting to obtain better personnel relations.

Sufficient information has been accumulated on practically every scheme for organizing medical services to substantiate the claim that medical services of the same quality cannot be provided at any less cost by these schemes than in private medical practice. Likewise, there is no group of persons in a community which cannot obtain sufficient medical care by permitting each person the freedom to choose his own physician. Progressive developments in workmen's compensation, industrial medical care plans and student health services indicate that a plan solely for the payment of medical bills (without control of the services) which permits free choice of physician and free choice of hospital is not more expensive and does not interfere with the quality of medical services or with the private practice of medicine. Furthermore, such arrangements have the full cooperation of medical societies. Plans that depend on underbidding, advertising, solicitation and other practices which impair the quality of medical services or prevent the development of an improved service can never be justified. Poor medical care, even if it is cheap and plentiful, may be worse than no medical care at all. Medical cults, quacks and "patent medicines" make a certain type of service more readily available at low cost, but these services have been strongly denounced.

Collecting the average annual cost for medical services from each of a number of persons in the hope of relieving a few individuals from possible large medical bills—the insurance principle—is another feature of group payment plans which is so plausible in appearance that many persons have not taken pains to examine the practical effects of such an arrangement. First of all, a considerable charge must be added to the average cost for each person to provide for the administrative expenses of any insurance plan. Next is the impossibility of calculating in advance a premium that will provide for the costs of new developments in medical science. The result is an inevitable collision between the resources of the insurance system and the needs of the insured persons for new and indeterminate amounts of expensive medical services. Another difficulty is that each individual who pays into the insurance

fund will make a conscious effort to obtain as much medical service as possible even if he does not actually need medical care. The medical profession has never objected to the insurance principle as a method of providing cash payments to individuals for medical and hospital bills such as the health and accident insurance policies which have been issued by insurance companies for almost a hundred years. The medical profession does object to the attempt of any corporation or association to provide, control or manipulate the actual medical services. Reputable insurance companies have found that it is undesirable both in the interests of their policyholders and for financial reasons to attempt to provide actual medical services through contract physicians or hospitals. It is hoped that the public and those who have been misled by the promises of certain new forms of medical care will finally realize that any plan which destroys professional control over the quality of medical services will only result in a low grade medical service which in itself may have as many potentialities for danger to health and life as the illness from which the individual seeks relief.

#### GROUP HEALTH ASSOCIATION, INC

Another development in methods of distributing medical service is found in a certificate of incorporation filed in the office of the Recorder of Deeds of the District of Columbia, Feb 24, 1937, on behalf of Group Health Association, Inc. The certificate makes eligible for membership every employee of every branch of the United States government other than officers and enlisted men of the Army and Navy. It attempts to authorize the association

To provide without profit to the corporation for the service of physicians and other medical attention and any and all kinds of medical surgical and hospital treatment to the members hereof and their dependents and the construction and operation of a clinic and medical office building and the construction and operation of a hospital in the manner permitted by law for the members hereof and their dependents and the operation of a drug store or pharmacy and the providing of nurses and of drugs and remedies for the members hereof and their dependents and the furnishing of all forms of hospital service and attention to the members hereof and their dependents and in general the giving to the membership of this association and their dependents of all forms of care, treatment or attention that may be required by the sick or in the prevention of disease.

In the report from the Committee on Appropriations (to accompany H. R. 8837) the following statement appears:

Entirely irrespective of the merits of the work proposed to be done under the Group Health Association for which the Home Owners Loan Corporation recently made a contribution of \$40,000, the committee is of the unanimous opinion that the expenditure was one not authorized by law and that such expenditures should not hereafter be made without specific legal authority.

According to newspaper reports, the Federal Home Loan Bank Board guaranteed an advance up to \$100,000 to get the association under way.

In order, however, that the corporation might supervise and direct the activities of the association, the Home Owners' Loan Corporation insisted that it be given authority to name two of the trustees of the Group Health Association.

The form of application for membership provided by Group Health Association was arranged to give the member the option of paying his dues personally or of assigning to the association so much of his government salary as may be necessary for that purpose and requesting his "employer," the government of the United States, to deduct semi-monthly the amount assigned and remit it to Group Health Association, Inc. As this assignment form is also an application for membership and obviously belongs to the files of the association, an additional assignment form has been provided presumably to be filed with the paymaster of the Federal Home Loan Bank Board or the particular affiliate of the board by which the member of the association is employed. This form specifically assigns, sets over and directs the Home Owners Loan Corporation and the Federal Savings and Loan Insurance Corporation to pay Group Health Association the amount due to that association, out of any salary or wages due or to become due to the member so long as membership continues.

The United States district attorney for the District of Columbia has held that the association is engaged unlawfully in the practice of medicine and the insurance commissioner has



held that it is engaged unlawfully in carrying on the business of insurance. The status of the association with respect to these matters is at present writing before the courts for determination. Although the activities of Group Health Association, Inc., have thus far been limited to the District of Columbia and adjacent areas in Maryland and Virginia, the articles of incorporation in no way limit the area in which it may function. Membership in the first instance was restricted to officers and employees of the Home Owners' Loan Corporation and its affiliates, but more recently members have been accepted from other branches of the government.

So far as is known this is the first time that any governmental agency, federal or state, has undertaken through the use of public funds to subsidize a private lay corporation to provide medical services in competition with legitimate practitioners of medicine. Although in the present instance the granting of this subsidy has been held to be without authority of law, there seems to be no way which the taxpayers in the country can recover their misapplied money.

#### GROUP HOSPITALIZATION

Beginning in 1933, several publications of the Bureau of Medical Economics dealing with group hospitalization plans have emphasized that medical services should not be included in hospital service contracts. In the 1935 Annual Report of the Bureau, it was stated:

The medical profession is opposed to any plan that will destroy the basic features of medical service or will permit hospitals to enter the practice of medicine. If hospitals are permitted to include medical care in their contracts for hospital service the precedent is set for institutionalized contract medical practice with all its destructive effects on the art and science of medicine.

The report of the Judicial Council for the same year also stated:

Whether the scheme [meaning the group hospitalization] is or is not financially or economically sound is not the problem of our organization but it is our business to see that the furnishing of medical service is not included in the sale of insured hospital accommodations. This can be done if a strong stand is taken and maintained by the organized medical profession, which must keep a watchful eye to see that medical care is not initially or later included when the usual sales efforts demand increased benefits to purchasers.

At the annual meeting of the House of Delegates in Kansas City, May 11-15, 1936, three resolutions were presented that dealt with group hospitalization plans and medical practice in hospitals. The first of these, presented by the Section on Radiology, condemned the attempts of lay groups to provide diagnostic medical services along with and as a part of hospital services and resolved that the Council on Medical Education and Hospitals be authorized to take steps that would result in the practice of medicine being conducted by physicians and not by hospitals. The second resolution from California, also denounced the attempt of organized lay groups to provide diagnostic medical services as a part of hospital services and disapproved of the division of any branch of medicine into technical and professional portions. The third resolution, from Pennsylvania, insisted that the practice of radiology is the practice of medicine and disapproved of the proposal of certain hospitals to divide the practice of radiology into professional and technical services.

These three resolutions were consolidated in the following report of the Reference Committee:

It reiterates the principle enunciated by the House of Delegates at Cleveland in 1934. That the practice of radiology whether for diagnostic or therapeutic purposes constitutes in fact the practice of medicine. The action of the House of Delegates in 1925 establishing a section on radiology confirms this principle.

It further recommends that all services connected with the practice of radiology be under the direct control and supervision of the medical profession and this same principle pertains to other technical and professional services.

This report was adopted by the House of Delegates.

Again in the 1936 annual report of the Bureau it was necessary to report that "few, if any, of the plans exclude all medical services from their group hospitalization contracts" and that "these prepayment plans for hospital care show a distinct tendency to place hospitals themselves in the field of medical prac-

tice." Based on a complete study of group hospitalization plans, ten principles were suggested, the fourth of which was as follows:

The subscriber's contract should exclude all medical services—except those provisions should be limited exclusively to hospital facilities. If the service is limited to include only hospital room accommodations, bed board, operating room, medicines, surgical dressings and general nursing care the distinction between hospital service and medical service will be clear.

This and the other principles were adopted by the House of Delegates in Atlantic City in 1937 as follows:

That portion of the report of the Board of Trustees devoted to the Bureau of Medical Economics goes into careful detailed consideration of the question of group hospitalization. Your reference committee recommends the principles stated in that section of the report pertaining to group hospitalization and recommends the adoption of those principles as the policy of the American Medical Association, and it is urged that the medical societies in those communities in which group hospital insurance is thought to be necessary be guided by these principles to the end that such schemes confine their contract benefits strictly to the facilities ordinarily provided by hospitals, viz: hospital room, bed board, nursing, routine drugs. It is suggested that the Bureau of Medical Economics continue to collect factual and statistical data concerning group hospital insurance experience and make these facts available from time to time.

In reply to a resolution from Ohio (1937) asking for a clarification of the policy of the American Medical Association with regard to what medical services should not be included in a group hospitalization contract, the reference committee reported as follows:

It is recommended therefore, that the contract benefit provided by group hospitalization insurance should be limited to the room, bed board, nursing facilities ordinarily provided by hospitals and routine medicines.

Your reference committee would refer to principle 4 (as already given) which was adopted by this House of Delegates. In that paragraph the limitations of hospital service are well defined. Your reference committee reaffirms this definition of hospital care and recommends its application to contracts for group hospitalization. In regard to certain benefits offered by many hospital insurance plans combining professional and technical services your reference committee is in complete sympathy with those who would make every possible provision to prevent inclusion of any and all types of service involving medical care.

This report was adopted.

Shortly after the 1937 action of the House of Delegates was made public, editorials appeared in hospital magazines which seem to indicate a complete disregard on the part of certain hospital groups for the desires and recommendations of the medical profession as expressed by the House of Delegates. Excerpts from these editorials are as follows:

Ten years hence what will the verdict of history be on the action of the House of Delegates of the American Medical Association last June when it attempted to set up a barrier between medical and hospital services and laid down the law to group hospitalization plans?

Is it the prerogative of the medical profession to decide on hospital policies all by itself? As a practical matter well organized group hospitalization plans that have already included x-ray, anesthesia and laboratory services with the cooperation of their local medical societies are likely to go ahead as they have been going.

No one is justified so far as the patient is concerned in taking the hard-boiled attitude that hospital care has any limitations as far as the welfare of the patient is concerned. Whether he is a charity patient or one who pays in part or in full for his care he is entitled to every attention in consonance with the established standards which the medical profession and the hospitals unite in maintaining. The patient whatever his economic status is entitled to receive the necessary service of the clinician, the surgeon, the pathologist, the radiologist, the nurse and the lay people who attend him. All these services are a part of the hospital coordinated by the hospital for the benefit of the patient. Hospitals must provide this service. They cannot accept the dictation of a minority of medical men who place their own financial advantage above the welfare of the patients under their care.

At the Atlantic City Convention of the American Medical Association last June resolutions were adopted calling on group hospitalization plans to furnish hospital care only and specifically to exclude laboratory service, x-ray and anesthesia. Are several hundred hospitals with thousands of trustees and several hundred thousand citizens who are members of these plans to be under dictation from a national association of medical men who place their own financial advantage above the welfare of the patients under their care?

In several other respects studied attempts have been made to discredit the recommendations of the House of Delegates that medical services be excluded from hospital service contracts.

In verification of the fact that the House of Delegates of the American Medical Association is truly representative of

the majority of physicians in the United States—if such verification is needed—state medical societies in twenty-one states have passed resolutions or adopted reports of committees recommending that medical services be excluded from hospital service contracts, whereas in only one state can the medical society be considered as approving of the inclusion of medical services in group hospitalization contracts, and this only by inference because the society has endorsed a group hospitalization contract which includes medical services. In the remaining states this problem has not arisen or no definite official action has been taken, but the attitudes expressed and the resolutions adopted on similar problems indicate that the inclusion of medical services in a hospital service contract is not looked on with favor. Many county medical societies have also taken action against the inclusion of medical services in group hospitalization contracts. It can be accepted that the conviction of the medical profession throughout the United States is that medical services should not be included in hospital service contracts.

In chapter IV of the study "Group Hospitalization" is a full discussion of the attitudes toward the inclusion of medical services in group hospitalization contracts taken by societies of radiologists, pathologists and anesthetists, as well as by associations of hospitals. The effect that the inclusion of special medical services such as anesthesia, pathology and radiology in a hospital service contract will have on the practice of these medical specialties is also discussed in this study. Three thousand copies of the study have been distributed by request to hospital administrators, physicians and lay persons.

Two proposals were suggested in the study to avoid the difficulties created when hospital services are sold in a contract. The first is to restrict the benefits of the hospital insurance contract exclusively to hospital facilities such as bed and board, operating room, medicines, surgical dressings, and general nursing care. The second proposal is that all benefits should be paid in cash to the subscriber, who could then purchase his hospital service without disturbing or altering the relations between physicians and hospitals. The best arrangement for a hospital service contract depends on the many factors involved in the particular locality, but it is clear that no form of medical service should be included in such contracts. There are several indications that the special medical services in contracts now sold by group hospitalization plans may be removed from new contracts and from the renewal of existing contracts.

Nevertheless, proponents of group hospitalization plans have insisted that certain anesthesia, pathologic and radiologic services can be included because the hospital reimburses anesthetists, pathologists and radiologists in accordance with previously existing financial arrangements. They seek to interpret the principle that medical services should not be sold in a hospital service contract as a prohibition against hospitals providing anesthesia, pathologic and radiologic services for all patients as follows:

If the general principle as laid down by the House of Delegates is sound, what is the logic of applying it to group hospitalization only? And if it is to be applied to all anesthesia, x-ray and laboratory services for all patients, why then the hospitals are in for a considerable revamping of their professional administrative and financial organizations that is they are in for a reorganization in so far as they decide to reorganize.

This larger problem of the relations between hospitals and physicians concerning the practice of medical specialties in hospitals and, in particular, the method of remuneration for such medical specialties has already been given considerable attention by the House of Delegates and is now the subject of an investigation by the Bureau of Medical Economics. This problem, however, should not be allowed to confuse the principle which has been established concerning group hospitalization contracts, namely, that medical services should not be included in such contracts.

#### EXPANSION OF HOSPITAL FUNCTIONS

Since the beginning of the twentieth century there have been tremendous changes in the traditional function of hospitals. Hospitals have always been regarded as specially equipped institutions for the hospitalization of patients who could not be treated satisfactorily in their homes or in the physicians'

offices. Now hospitals are beginning to assume a dominant place in the practice of medicine and in the delivery of medical care to the American people. In this newer role hospitals have, unfortunately, been assisted or encouraged by some members of the medical profession. The importance of the individual physician as the primary figure in medical care is obscured by a trend toward institutionalized medicine with the hospital as the central figure.

The first step in this direction was made when hospitals began the operation of pay clinics and outpatient departments. The original concept that outpatient services and part-pay clinics should be maintained only in teaching institutions where patients were needed for clinical material or only for indigent patients was soon forgotten and outpatient departments and clinics were developed with little regard for the disturbances they caused in the practice of private physicians. Further steps toward the practice of medicine by institutions were taken when hospitals adopted "all-inclusive rate" plans such as the "middle rate" plan, whereby patients are admitted on an adjusted fee basis including medical care as well as the use of hospital facilities, or the "flat-rate" plan, under which patients are admitted for diagnostic services and pay a flat fee covering the complete cost of all diagnostic medical services and use of the hospital facilities. The latest step has been the sale of group hospitalization contracts which offer purchasers the services of medical specialists as well as the use of the physical facilities of the hospital.

#### MECHANICAL AIDS IN MEDICAL PRACTICE

Other factors have been responsible for or have encouraged these changes. Perhaps the main factor is the widespread belief that machinery is revolutionizing the practice of medicine and is dispensing with the need for human judgment. The introduction of instruments for more precise diagnosis such as the x-rays, the electrocardiograph, metabolism testers, and other mechanical devices for laboratory tests, has led many persons to believe that exact diagnosis can be given without depending on the knowledge, experience and judgment of a physician. As a consequence, the accumulation of new and expensive equipment in hospitals is apparently thought by many to be more essential to good medical service than the personal ministrations of physicians.

A corollary of the tendency to emphasize mechanical devices is the attempt to standardize medical procedures and to provide them on a low cost, mass production scale. Such attempts are based on the belief that a human being can be regarded as a uniform, standardized organism. This is a fundamental fallacy, as no two individuals react in the same way to the same disorder. When an institution concerned with medical services tries to assume or actually adopts any of the characteristics peculiar to a great industry such as advertising, large capital investment or mass production, a deterioration in the medical services results. There is no way to standardize the infinite variety of human beings in health and disease.

As a consequence of the changes in the function of hospitals, medical practice in hospitals has now reached a stage somewhat analogous to the condition of medical education in 1904. To improve the then existing situation in medical education, the American Medical Association established an ideal standard of medical education and gained world renown through the council on Medical Education and Hospitals for raising medical education toward that standard. Existing practices or prevailing policies of medical education were not accepted as controlling, instead an ideal standard that would foster an ever improving quality of medical education was adhered to. This ideal standard has not yet been fully attained but no one can deny its value in improving the quality of medical services in the United States.

#### PRESENT TENDENCIES TOWARD THE PRACTICE OF MEDICINE BY HOSPITALS

The present situation in the practice of anesthesia, pathology and radiology in hospitals and the potentiality of increasing the number and variety of special medical services controlled by hospitals call for the establishment of a similar ideal standard designed to permit a constant improvement of practice in hospitals.

The action of the House of Delegates in 1904 was directed against the practice of medicine by incompletely trained physicians, cultists, quacks and lay persons. Today action must be directed against the attempt of corporations and associations to practice medicine by employing nurses and technicians under the tacit supervision of salaried physicians. The years of work that have been spent in raising the standards of medical education will be nullified if lay persons, nurses and technicians on the pay roll of a corporation or association are now permitted to give medical services.

To offer a lower cost service, hospital administrators and even some physicians have delegated many anesthesia, radiologic and pathologic duties to nurses and technicians. Such a utilization of nonmedical personnel may be permissible provided the quality of the medical service is not adulterated. It is false economy to place a portion of the practice of medicine in the hands of incompletely trained persons if the quality of the service is cheapened or if the development of an improved service is retarded. The service offered by the indiscriminate use of nonmedical personnel may cost less, but it will be of less value in preventing or overcoming disease, and, what is more important, there will be no encouragement for medical students to train themselves for such services if these fields are being filled or usurped by medically untrained persons receiving small incomes. The opportunities for physicians to establish desirable practices in these fields are becoming so limited that they turn to other types of practice. The result is an underdevelopment of the scientific possibilities of the practice of anesthesia and pathology. The line between the functions which may be performed by nonmedical persons and the functions which can properly be performed only by a physician may be difficult to draw. It may be reasonable to believe that the utilization of nonmedical persons only under the direct and immediate supervision of qualified physician-specialists will permit lower costs without endangering the quality of the service or retarding the improvement of the practice of medical specialties in hospitals.

The problem to be faced is: Shall more and lower-cost special medical services in hospitals be performed by persons less highly trained than physicians, or shall the quality of medical services be maintained by insisting that medical services be performed only by or under the immediate direction of properly trained physicians? Undoubtedly, the latter is more desirable. Entirely apart from the legal aspect of the question, there is not sufficient evidence that the people of the United States are unable to buy adequate medical services of a quality offered by competent physicians to warrant an adulteration of medical services by permitting corporations, nurses, technicians or lay persons to practice medicine.

Whatever antagonism has developed between hospitals and physicians over group hospitalization plans is but an outgrowth of already existing unsatisfactory relations between hospitals and physicians. The pressure that has been placed on hospital administrators to find some source of income to finance their large capital investments and to continue to provide extensive free services has led many hospital administrators to adopt policies deleterious to the entire practice of medicine. Some of these are solicitation of patients, advertising, the entrenchment of nurse anesthetists, the placing of more and more of the practice of radiology in the hands of incompletely trained lay technicians, and the forcing of pathology from its rightful position in the practice of clinical medicine.

All these policies are undertaken for the essential purpose of increasing hospital revenue to permit the continuation of the services rendered to the residents of the community. Sympathy must be expressed for the financial difficulties faced by hospitals, and all just means of financial assistance should be encouraged. Nevertheless, the improvement of hospital finances must not be at the expense of the quality or the opportunities of medical practice.

It is unethical, and therefore contrary to good public policy, for hospitals to participate in the practice of medicine in order to obtain an income to finance other hospital activities or to attempt to lower the cost of special medical services by methods that impair the quality of the service or prevent the development of an improved service. Where such a situation

exists the patients may be overcharged for the medical service of the medical department, the medical specialists may be receiving an insufficient income, or the services may not be maintained at a proper standard because of the use of cheap technical assistants or because of inadequate equipment, or insufficient or underpaid personnel. The proper method of remuneration for the hospital and the physician should enable the hospital to provide adequate building, equipment and personnel without necessitating an attempt to control or to employ physicians and should permit the physician to schedule his charges so as to make it possible for all patients to have easy access to necessary special medical services. In keeping with the ethics of the medical profession, both hospitals and physicians must place service first and financial considerations second.

#### QUALITY OF MEDICAL CARE MUST BE MAINTAINED

The present high plane of medical practice is largely the result of constant supervision of the practice of medicine by organized societies of physicians. It does not appear that any other organization is so capable of developing the practice of medicine to an increasingly higher plane of service. The public, as well as all the agencies in the medical field, look to the medical profession for improvements in the practice of medicine. A resolution by a national hospital association concluded that

the medical profession must be accorded predominant influence in the medical activities of all institutions giving health and sickness care and, therefore, the hospital members of this association commit themselves to the policy that the rights, duties and privileges of the medical profession be considered directive and authoritative in hospital science and service.

The turmoil between hospitals or agencies representing hospitals and national societies of anesthetists, of pathologists and of radiologists cannot continue without harmful effects on the practice of medicine in hospitals. It is of utmost importance for the House of Delegates to outline the steps that will lead those interests now in conflict to a common ground of understanding. The future course of the practice of medical specialties in hospitals will be largely dependent on the solution of the present difficulties in the relations between hospitals and physicians.

#### WORKMEN'S COMPENSATION

The period since 1930 has been one of exceptional developments in workmen's compensation legislation. Improvements in the relations with organized medicine in regard to medical care are particularly noticeable. The trend which has existed since the beginning of workmen's compensation legislation in the direction of increasing the amount of medical services to injured workers has proceeded at an accelerated rate. The inclusion of occupational diseases is especially significant, since 1930, fourteen states have included or increased the coverage for such diseases. A supplement to the publication "Medical Relations Under Workmen's Compensation," entitled "Developments in Workmen's Compensation since 1930," recounts these recent changes.

Even more significant, from the point of view of the medical profession, is the tendency to seek the direct cooperation of state medical societies in the administration of compensation laws. In New York State an act—significantly known as the "Medical Abuses Act"—has thrown the responsibility for determining the competence of physicians admitted to care for compensation cases on the state and county medical societies. Each county society is required by law to prepare a panel of all those considered competent to care for such cases, and this panel, when approved by the compensation officials, becomes a part of the administration machinery. Injured workers have free choice among all physicians approved by the county medical societies and placed on the panel. The law has been in operation a little over a year and has been approved by the supreme court.

Similar legislation is being considered in several other states. In some fourteen states the medical society is at least semiofficially recognized usually through a committee of the state medical society, as an organ of administration. In some states such a committee passes on all contested cases and its opinion is accepted as final. In others it is directed

consulted and its approval generally accepted in the formation of panels of physicians, among whom there is free choice. In numerous states committees of either state or county medical societies charged with the duty of adjusting medical bills have been approved by insurance carriers and administrators.

These developments are apparently approaching a solution of some of the problems that have given rise to the sharpest conflict between the medical profession and compensation carriers and administrators. Freedom of choice is now being granted workers from lists of physicians whose competence is vouched for by organized medicine. The question of the fairness of medical bills is being left to the decision of committees of state and county medical societies. Whereas a previous study showed that in many states such conflicts led to undesirable friction and difficulties, information from both administrators and state medical societies now uniformly indicates that such difficulties are being adjusted and both sides speak frequently of the excellent relations now existing.

#### INSURANCE MEDICAL DIRECTORIES

At the annual meeting of the House of Delegates of the American Medical Association in 1936, a resolution was adopted condemning the listing of a physician's name for a fee in a directory which indicates his specialty and his availability for insurance and compensation work and for other professional services. At the time of the adoption of this resolution, at least fourteen concerns were publishing such insurance medical directories and were soliciting physicians for a listing of their names on the payment of a \$10 to \$75 fee. In January 1937 an article published in the Organization Section of *THE JOURNAL* called attention of physicians to the resolution, to the sales devices used by the publishers of insurance medical directories and to the inadvisability of paying a fee for a listing in such directories.

Despite the fact that the listing of a physician's name in an insurance medical directory was condemned as an unethical, indirect solicitation of patients, and despite the fact that such directories mainly serve the profits of the publishers and are of little benefit to physicians and insurance companies, many physicians continued to support medical directories. In September 1937 a second article published in the Organization Section of *THE JOURNAL* gave the results of a survey of 220 insurance companies in the United States and Canada—representing all types and sizes of companies. This survey showed conclusively that insurance medical directories are not used in the selection of insurance examiners. The directors of medical departments of insurance companies have found that there is no real selection of physicians in such commercial directories and for that reason they employ independent methods to determine the qualifications of physicians as insurance medical examiners. Most insurance company officials have learned that the physician who subscribes to these commercial lists may have no particular qualifications for insurance service other than his willingness to have patients referred to him and his desire to collect a fee.

Several of the publishing concerns have now discontinued their insurance medical directories and others are considerably less active. In one locality physicians caused the arrest of a salesman for an insurance medical directory on the grounds of his obtaining money through misrepresentation. Bona fide directories of physicians, published by the American Medical Association, by state and county medical societies and by well established organizations do not ask any entrance fee from the physicians listed therein. These directories adequately fill the needs of insurance companies for lists of physicians, by locality and type of practice, to supplement the regular procedure followed in the selection of insurance medical examiners.

A considerable number of requests are still received from physicians concerning the desirability of paying a fee for a listing in a directory purported to be used for selecting insurance medical examiners. It is hoped that the information contained in the two articles which appeared in *THE JOURNAL* and are available in reprint form entitled "Medical Directories" will be widely utilized to prevent physicians from being victimized by publishers of pay-as-you-enter insurance medical directories.

#### OTHER ACTIVITIES

As measured by the volume of correspondence received during the year, physicians, lay persons and administrators of various agencies showed the greatest concern over group hospitalization plans, insurance companies (particularly malpractice insurance), contract practice plans, socialized medicine and workmen's compensation in the order mentioned. It is significant to notice an apparent subsidence of concern over health insurance as indicated by the Bureau of Correspondence.

State and county medical societies were especially interested in obtaining complete information about group hospitalization plans in operation and analyses of proposed plans. Medical societies also desired information concerning the method of organization and operation of professionally controlled credit and collection bureaus. The information that has been collected from such bureaus will be made available in the Organization Section of *THE JOURNAL*. There is some indication that medical societies are now taking more interest in student health services. Many copies of the report "University and College Student Health Services" were distributed to state and county medical societies.

Many articles and abstracts pertaining to current medical economic problems were prepared for the Organization Section of *THE JOURNAL*.

Representatives of the Bureau traveled to twenty-two states for speaking engagements or conferences in the interests of state and county medical societies. The Bureau also cooperated with the Bureau of Exhibits in the preparation of material to be exhibited at meetings of state and county medical societies and of other groups such as the American College of Surgeons.

#### Summary

**Survey of Need for Medical Care**—Within recent years there has been considerable agitation for socialization of medicine by some grandiose system of organizing, distributing and controlling medical services. As a result, many persons have been misled into the belief that medical services in the United States are grossly inadequate despite the fact that in many health and medical surveys only about 10 per cent of the population have been shown to be in need of medical care which they presumably desire but are not receiving, that 90 per cent of all sick persons are attended by physicians, and that the morbidity and mortality rates rank the United States as one of the most healthful countries in the world.

Consistent with the interest which the American Medical Association has always maintained in health and medical matters, the Board of Trustees of the American Medical Association passed resolutions calling for the determination of the actual needs for medical services in every county in the United States. All county medical societies, in cooperation with other agencies and organizations concerned with medical services, will be encouraged to collect data pertaining to need for medical care and to recommend preferable procedures to meet that need. This project is but a furtherance and extension of the encouragement which the Association has previously given to state and county medical societies to develop means by which all persons might readily obtain medical care at fees commensurate with their ability to pay.

**New Forms of Medical Practice**—A large number of plans have been proposed or actually inaugurated for the purpose of offering "low-cost" medical service to some special groups of persons. The creation of special administrative organizations for every social, industrial and cultural group will necessarily mean a maze of small administrative units. The desirability of such a method of distributing medical services is extremely doubtful from the point of view both of economy and of good medical practice.

Sufficient evidence has been accumulated on practically every scheme for organizing medical services to disprove the claim that some organizational arrangement can

lower the cost of good medical services. Certainly no system of collecting payments for medical care can lower the average cost of \$25 to \$30 per person annually unless many essential services are excluded or medical services of less than average quality are offered. Plans that depend on underbidding, advertising, solicitation or similar practices to provide cheaper services impair the quality of medical service and prevent the development of an improved service.

**Group Hospitalization**—The House of Delegates of the American Medical Association, state and county medical societies, and national societies of specialists have all recommended that medical services be excluded from group hospitalization contracts. The medical profession is convinced that the inclusion of medical services "in kind" in group hospitalization contracts will have an undesirable effect on the practice of medical specialties in hospitals, and therefore on the quality of the services rendered. Two proposals have been suggested as a solution to the problem of medical services in group hospitalization contracts: (1) restrict the benefits of the contract exclusively to the use of hospital facilities such as bed and board, operating room, medicines, surgical dressings and general nursing care, and (2) pay cash benefits directly to the insured for all medical services. Several group hospitalization plans now exclude medical services or offer cash benefits for such services, and the indications are that other plans will do likewise.

There is need for the House of Delegates to adopt a standard for medical practice in hospitals which will permit the constant improvement of medical services. The years of work spent in raising the standards of medical education will be nullified if hospital corporations and associations are permitted to sell medical services to patients by employing lay persons, nurses and technicians to render certain medical services under the tacit supervision of salaried physicians.

**Workmen's Compensation**—Since 1930 there have been several exceptional developments in workmen's compensation. Outstanding is the tendency to seek the direct cooperation of medical societies in the administration of workmen's compensation laws. In an increasing number of states, injured workmen are now being allowed freedom of choice of physician from lists of physicians vouched for by medical societies. A report entitled "The Developments in Workmen's Compensation since 1930," which recounts these changes, is now appearing in the Organization Section of *The Journal*.

**Insurance Medical Directories**—A considerable number of requests are still being received from physicians concerning the desirability of paying a fee for a listing in a directory purported to be used for selecting insurance medical examiners. In 1936 the House of Delegates adopted a resolution condemning the listing of a physician's name for a fee in a directory which indicates his specialty and his availability for insurance and compensation work and for other professional services. The information contained in the pamphlet "Medical Directories," if utilized, should prevent physicians from being victimized by publishers of pay-as-you-enter insurance medical directories.

**Other Activities**—As measured by the volume of correspondence, the most interest was shown in group hospitalization plans, insurance companies, contract practice plans, socialized medicine and workmen's compensation. A noticeable subsidence of concern over health insurance occurred.

Many articles and abstracts pertaining to current medical economic problems were prepared for the Organization Section of *The Journal*. Representatives of the Bureau attended meetings in twenty-two states for speaking engagements and conferences or to exhibit medical economic material.

## Bureau of Investigation

While the larger part of the work of the Bureau of Investigation is conducted through correspondence involving receipt and answering of from ten to twelve thousand communications a year, the Bureau of Investigation has continued its cooperation with medical societies and other professional groups, with teachers, with health departments and with other organizations interested in sound medical practice and in health education.

Exhibit material has been supplied on request. Each year the number of inquiries received from laymen shows a distinct increase, most largely accounted for by requests received from students whose teachers and textbook references direct them to the Bureau of Investigation of the American Medical Association for information.

The publishers of newspapers and magazines and the operators of radio broadcasting stations and of advertising agencies continue to call on the Bureau for information regarding advertising, and charitable and educational institutions and rating agencies frequently avail themselves of the services of the Bureau. The utmost cooperation has been offered to various agencies of the federal government, including the Post Office Department, the Food and Drug Administration, the Federal Trade Commission and the Federal Bureau of Investigation as well as Better Business Bureaus and official departments of municipalities. All these agencies have reciprocated in replying to inquiries addressed to them by the Bureau of Investigation.

Dr. Frank J. Clancy, who succeeded Dr. Arthur J. Cramp as director of the Bureau, resigned Oct. 1, 1937, in order to return to the private practice of medicine. During the year, and prior to his retirement as director, Dr. Clancy appeared before twenty audiences in widely separated parts of the country for the purpose of discussing important subjects of popular interest with which the work of the Bureau is directly concerned. During the year, twenty major articles dealing with as many subjects were prepared by the Bureau and published in *The Journal*.

The demand for pamphlets and leaflets pertaining to frauds in medicine and to quackery was fully sustained during the year. Some of the older pamphlets issued by the Bureau were revised and new ones were added to the list available for distribution.

## Summary

The work of the Bureau of Investigation has been continued along the usual lines. From ten to twelve thousand direct communications are answered by the Bureau each year. There is a constant increase in the number of inquiries received from laymen. The Bureau has continued its cooperation with medical societies and other professional groups and with various official agencies of federal, state and city governments. An increasing number of inquiries come from students in universities, colleges and schools. The director of the Bureau actively participated during the year in the field work of the Association. The usual demand for the pamphlets of the Bureau has been fully sustained.

## Bureau of Exhibits

The report of the Bureau of Exhibits is presented under the following headings:

The Scientific Exhibit  
Association Exhibits  
Exposition Exhibits  
Motion Pictures

The work of the Bureau of Exhibits involves cooperation with numerous agencies. The Scientific Exhibit is conducted with the advice of the committees of the fifteen sections of the Scientific Assembly and requires much correspondence with the committees and with the secretaries of the sections. Association exhibits present the work of the various committees and bureaus of the headquarters group and activities in connection require frequent consultations with the committees and bureaus. Requests for exhibits from lay organizations are



presented through county or state medical societies, thus furnishing frequent contacts with those societies. The able assistance of all these groups has contributed greatly to the success of the work of the Bureau and appreciation is hereby expressed.

#### THE SCIENTIFIC EXHIBIT

The Scientific Exhibit at the 1937 session was the largest in the history of the Association. The floor space in that part of the auditorium which was assigned to exhibits was crowded to capacity, requiring the use of the stage and of corridors on either side of the auditorium. One of the increasing problems of the Scientific Exhibit is to provide enough space to accommodate the crowds constantly in attendance. Approximately 50,000 square feet of floor space was required at the Atlantic City session.

*Total Exhibits, 1937*—There were 319 signed applications for space in the Scientific Exhibit at the Atlantic City session. Of these 249 were accepted and seventy rejected or withdrawn (29 per cent). The total number of exhibits shown was 254, divided as follows:

Section exhibits	194
Symposium on heart disease	25
Educational group	25
A. M. A. headquarters group	5
Motion picture booths	3
Special (subsidized) exhibits	2
<b>Total</b>	<b>254</b>

Although the number of exhibits in 1937 exceeded those of former years, the ratio for the attendance was almost exactly the same as in years past, 38.4 persons per exhibit.

*Section Exhibits*—The fifteen sections of the Scientific Assembly presented 194 exhibits, an average of thirteen each. The largest number shown was twenty-six, by the Section on Surgery, General and Abdominal, while the smallest number was eight, by the Section on Urology and the Section on Nervous and Mental Diseases.

Each section appointed a representative to assist in the matter of obtaining noteworthy exhibits in the various fields of medical endeavor. These representatives did excellent work, but some produced so much material that some embarrassment was created by lack of available space and facilities for handling.

#### Exhibits Presented by Sections of the Scientific Assembly

	Atlantic City 1937
Practice of Medicine	18
Surgery, General and Abdominal	26
Obstetrics, Gynecology and Abdominal Surgery	10
Ophthalmology	11
Laryngology, Otolaryngology and Rhinology	9
Pediatrics	9
Pharmacology and Therapeutics	9
Pathology and Physiology	17
Nervous and Mental Diseases	8
Dermatology and Syphilology	12
Preventive and Industrial Medicine and Public Health	14
Urology	8
Orthopedic Surgery	11
Gastro-Enterology and Proctology	18
Radiology	14

The Section on Practice of Medicine was represented by Fred M. Smith, Iowa City. Twenty-seven applications were presented of which eighteen were accepted, one transferred to the Symposium on Heart Disease and two transferred to the Educational Classification. A certificate of merit and two "honorable mentions" were awarded to this section. Two papers were presented before the section by exhibitors. A special feature was the Symposium on Pneumonia consisting of three exhibits accompanied by lectures and motion pictures.

The Section on Surgery, General and Abdominal was represented by Lester R. Whitaker, Boston. There was a total of forty-three applications of which twenty-six were accepted, one transferred to the Heart Symposium and one to the Section on Preventive and Industrial Medicine and Public Health.

The section was given one certificate of merit and three "honorable mentions." Four papers were read by exhibitors on the same subjects as those carried by exhibits.

The Section on Obstetrics, Gynecology and Abdominal Surgery sent in fourteen applications, of which ten were accepted. There were two awards made to the section—a bronze medal and a certificate of merit. There were no papers presented by the exhibitors. In connection with the exhibits of this section there was conducted a motion picture program on carefully selected subjects, which drew large crowds. The section representative was H. Close Hesselstine, Chicago.

The Section on Ophthalmology had eleven applications for space, all of which were accepted and one of which was given "honorable mention." Six of the eleven exhibitors read papers in the section meetings. A motion picture program in conjunction with the exhibits was a special feature. Georgianna Dvorak-Theobald, Oak Park, was the section representative.

The Section on Laryngology, Otolaryngology and Rhinology was represented by Louis J. I. Burns, Philadelphia. There were seventeen applications presented, nine of which were accepted. One exhibitor read a paper.

The Section on Pediatrics, for which F. Thomas Mitchell, Memphis, Tenn., was the section representative, had eleven applications, of which nine were accepted. Three exhibitors read papers in the section meetings.

The Section on Pharmacology and Therapeutics presented ten applications, nine of which were accepted and one transferred to the Educational Classification. One exhibitor received a silver medal. Four of the papers in the section meetings were presented by exhibitors. The section representative was Wallace M. Yater, Washington.

The Section on Pathology and Physiology was represented in the Scientific Exhibit by F. W. Konzelmann, Philadelphia. The number of applications for space totaled twenty-six, of which seventeen were accepted, three transferred to other sections and two transferred to the heart symposium. There were five awards—a gold medal, two certificates of merit and two "honorable mentions." Eight of the papers in the section meetings were from exhibitors.

The Section on Nervous and Mental Diseases presented eight applications, all of which were accepted. One exhibitor received a silver medal and one special commendation. Three exhibitors read papers in the section meeting. The section representative was Peter Bassoc, Chicago.

The Section on Dermatology and Syphilology presented twelve exhibits from the fourteen applications for space. In the same group were shown two exhibits on syphilis from the educational classification. There was one "honorable mention" given. Three papers were read by exhibitors before the section. The section representative was Clark W. Finnerud, Chicago.

The Section on Preventive and Industrial Medicine and Public Health produced twenty applications, of which fourteen were accepted and one transferred. Three exhibitors received "honorable mention." One exhibitor read a paper. Paul A. Davis, Akron, was section representative.

The Section on Urology, of which R. S. Ferguson, New York, was section representative, presented ten applications, with eight acceptances. One exhibitor received a certificate of merit and one "honorable mention." Four papers in the section meeting were read by exhibitors. In the same group with the Section on Urology were shown two exhibits on gonorrhea from the educational classification.

The Section on Orthopedic Surgery presented eleven exhibits out of twenty applications for space. The awards consisted of a gold medal and a certificate of merit. Three exhibitors read papers in the section meeting. Three of the applications were for space to show motion pictures, which was done in an area adjoining the exhibits. Jesse T. Nicholson, Philadelphia, was the section representative.

The Section on Gastro-Enterology and Proctology had twenty-three applications for space of which eighteen were accepted. One certificate of merit was given. Four exhibitors read papers. The section representative was J. A. Borgen, Rochester, Minn.

The Section on Radiology, with E. E. Downs, Woodbury, N. J., as section representative, presented fifteen applications,

of which fourteen were accepted. There were several other applications presented by radiologists included in other groups, notably the heart symposium. Three exhibitors presented papers before the section.

**Exhibit Symposiuns**—The exhibit symposium on heart disease was presented with the cooperation of the American Heart Association, with Thomas M. McMillan, Philadelphia, assisting. There were twenty-five exhibits covering different phases of the problems of heart disease, five of which received awards—a bronze medal, three certificates of merit and an "honorable mention." The exhibits were of exceedingly high caliber and aroused much favorable comment.

The exhibit symposium on pneumonia was presented under the auspices of the Section on Practice of Medicine. There were only three exhibits, but those three were well demonstrated and the booths were crowded most of the time. The motion pictures and the talks in an area adjoining the exhibits were somewhat disorganized by men not appearing to speak at the times advertised. The control of such activities by section exhibit committees is to be discouraged.

**Motion Pictures**—Three sections presented motion picture programs in connection with the exhibits—Obstetrics, Ophthalmology and Orthopedic Surgery. All the pictures shown were selected with considerable care by the section representatives, the pictures being previewed and parts cut out in some instances. The program was under the control of the Director of the Scientific Exhibit. The pictures on obstetrics attracted such crowds that the program had to be discontinued from time to time to allow men to reach the adjacent meeting hall. The pictures on ophthalmology attracted fair audiences, while those on orthopedic surgery were the least successful.

Many motion pictures were shown in the individual booths. There was some difficulty with bright overhead lights, requiring the erection of screens in some places.

Motion pictures still create a serious problem. A mediocre picture will sometimes attract attention beyond its intrinsic worth, while exceptionally good pictures will block the aisles and thus interfere with surrounding exhibits.

**Special Exhibits**—The Special Exhibit on Fractures was carried on under the efficient direction of Kellogg Speed, Chicago, assisted by Frank D. Dickson, Kansas City, and Walter Estell Lee, Philadelphia, with an advisory committee of fourteen and fifty-one demonstrators. The exact precision with which the demonstrations followed each other in all seven booths throughout the week bespoke of the careful planning by the committee in charge. The United States Army again assisted to the fullest extent, under difficult conditions. Surgeon General Reynolds made it possible for an officer and seven men from the Walter Reed Hospital to go to Atlantic City with a truck load of equipment. Major W. W. McCaw and the seven men were on continuous duty throughout the week. A booklet on fractures was in great demand.

A Special Exhibit on Anesthesia was put on for the first time and was not fully organized. R. M. Waters, Madison, Wis., with the aid of members of his own staff and other prominent anesthetists, conducted this exhibit. In spite of the loss in transit of part of the exhibit material and other difficulties, there was much interest in the exhibit, and the demonstrations, talks and motion pictures attracted good audiences. The pamphlet accompanying the exhibit was well received.

**Committee on Awards**—The Committee on Awards, composed of Ludwig Hektoen, chairman, A. J. Bedell, F. K. Boland, R. L. Haden and J. D. Trask, carefully studied all the exhibits over a period of three days and found the task of making awards extremely difficult, because of the large amount of material presented and its diversified nature.

#### ASSOCIATION EXHIBITS

A list "Medical Exhibits Available for Loan" was published in *THE JOURNAL* (Sept. 11, 1937, pp. 32B-36B) which increased markedly the number of requests for exhibits from numerous sources. There are forty exhibits on the list pertaining to the work of the various departments of the American Medical Association or to subjects in which those departments are interested. The material falls into two groups:

exhibits for medical societies and other scientific organizations and exhibits for the public for use at fairs and expositions. Requests from groups other than medical societies are required to come through the secretaries of the county societies or state associations or to receive the approval of such societies. Responsibility for installation and demonstration of the Association exhibits ordinarily is borne by the organization to which the material is lent. The American Medical Association does not have sufficient personnel to accompany all exhibits.

During the year 1937, exhibit material was sent out on 115 occasions to thirty-three states. Often two or more exhibits went to one place, resulting in 250 units distributed during the year. Of the 115 exhibits sent out, forty were medical and scientific in nature and seventy-five were for lay groups.

**Attendance at Exhibits**—The attendance at fifty-four public meetings was 828,450. The attendance for all groups, including the Great Lakes Exposition and the Texas Pan American Exposition, is estimated as about 3,500,000 persons who actually viewed the exhibits of the American Medical Association during the year.

**Exhibit on Syphilis**—The Board of Trustees authorized the preparation of an exhibit on "The Treatment of Early Syphilis" in collaboration with the United States Public Health Service. The exhibit was intended primarily for medical societies. It was made in duplicate, one set being sent to Washington for distribution to medical societies in the eastern part of the country and the other set being retained in Chicago to fill requests from the Central West and West. The material has been well received by medical groups and arrangements are in progress whereby exhibits on prenatal syphilis and on late and latent syphilis will be prepared, under the auspices of the United States Public Health Service, for loan purposes under a similar arrangement.

#### EXPOSITION EXHIBITS

Association exhibits were shown at two expositions during the year 1937, at Dallas and at Cleveland. At Dallas the exhibit was in charge of United States Public Health Service personnel. The attendance was reported to be approximately 1,500,000. The exhibit at the Great Lakes Exposition at Cleveland consisted of eight units. Demonstrations were in charge of personnel furnished by the Cleveland Academy of Medicine. The attendance was reported to be approximately 1,000,000 persons.

#### MOTION PICTURES

A feature of the motion picture program during the past year was the preparation of the film "The Diagnosis and Treatment of Syphilis—A Motion Picture Clinic." This film was prepared in cooperation with the United States Public Health Service and has been in constant demand. During the last six months of the year when it was available, it was sent out from Chicago on thirty-six occasions. Requests were referred also to the United States Public Health Service at Washington, where there are several copies of the film. Several of the state health departments purchased the film for distribution in their respective states.

Other motion pictures were sent out from time to time. An appropriation has been made for the Council on Physical Therapy to make new films to replace some of those now on hand.

#### Summary

The Scientific Exhibit at the Atlantic City session was the largest that has been shown, with 254 exhibits. The ratio between the number of exhibits and attendance was the same as for the last several years, approximately one exhibit for each thirty-eight Fellows registered. The Council on Scientific Assembly, the secretaries of the various sections and the section representatives to the Scientific Exhibit all gave close cooperation, while the special exhibits on fractures and anesthesia were outstanding successes.

Association exhibits, dealing with the activities of the Association, were sent out on 115 occasions to thirty-three states. There were forty medical and scientific meetings and seventy-five expositions and fairs for the

public Approximately 3,500,000 persons were reached by such means, including the Cleveland and Dallas expositions

The demand for motion pictures has been constant The new film on syphilis has been received with much favor

#### Report of Committee to Study Contraceptive Practices and Related Problems

The following report of the Committee to Study Contraceptive Practices and Related Problems has been transmitted, through its Chairman, Dr Carl Henry Davis to the Board of Trustees for submission to the House of Delegates

*To the House of Delegates of the American Medical Association*

As a supplement to the reports made to you in 1936 and 1937, your committee on contraceptive practices asks your acceptance of the following statement

It is not the function of the American Medical Association to tell physicians what therapeutic advice they shall offer patients However, it has been its policy to investigate various procedures, devices and drugs, and to publish the results of such studies in its official publications for the information of the profession

The instructions to the Council on Pharmacy and Chemistry and the Council on Physical Therapy to investigate further the materials, devices and procedures used for the purpose of contraception do not indicate any change in the usual policy of the Association, nor do they constitute an endorsement by the Association of contraceptive practices

Respectfully submitted

ARTHUR W BOOTH Chairman  
AUSTIN A HAYDEN, Secretary  
CHARLES B WRIGHT  
ROGER I LEE  
ALLEN H BUNCE  
RALPH A FENTON  
JAMES R BLOSS  
THOMAS S CULLEN  
R L SENSENICH

#### ADDENDA TO REPORT OF BOARD OF TRUSTEES

##### Report of Committee to Study Air Conditioning

At the time of the San Francisco session of the American Medical Association, the Committee to Study Air Conditioning will have functioned approximately eighteen months From the time of its organization this committee has conceived, as its initial and chief obligation to the Association to the medical profession and to the public, the preparation and publication of basic materials dealing with air conditioning, but foremost with respect to health and comfort By the time of the San Francisco session this committee will have prepared and published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION or will have ready for such publication the following studies Physical and Physiologic Principles of Air Conditioning Part I Physical and Physiologic Principles of Air Conditioning Part II, Equipment for Air Conditioning, Noise and Its Effect on Human Beings Noise Control as a By-Product of Air Conditioning, Hospital Air Conditioning, Instruments Used in the Measurement of Air Conditions In addition, this committee has engaged in the exhaustive compilation of all pertinent publications, both historical and modern, dealing with divers aspects of air conditioning This compilation with its abstracts, representing several thousand titles, is possibly too voluminous for ready publication but is available for scientific purposes and additional research subject to the limitations imposed by possible non-publication

The appraisal of this committee of commercial installations of air conditioning is that, in many instances opportunities for injury to persons subjected to artificial climates exist Fundamentally, these objectionable features are due to faulty concepts of commercial agencies regarding the optimal conditions as to

the atmosphere in which persons may be situated The chief deviations from commendable practices are found in excessive differentials in temperature between outside air and the artificial climate produced by air conditioning, and excesses in air motion This committee, in recognizing that the health of the public may be poorly served by the air conditions provided in many installations, also recognizes that commercial trends are toward greater consideration for the health requirements of persons influenced by artificial climates It is expectable that from the air conditioning manufacturing industry itself will come changes in types of installations to the end that causes of the unfavorable criticism made by this committee relative to many present conditions will be eliminated

On the completion of the publications mentioned, together with the final organization of bibliographic materials, this committee will have completed the program of work undertaken at the time of its creation If these activities fulfil the mission intended for this committee, its discharge is requested Otherwise it will be guided by additional instruction from the House of Delegates or other authoritative body

Respectfully submitted

CAREY P McCORD, Chairman  
EMERY R HAYHURST  
WILLIAM F PETERSEN  
H B WILLIAMS  
C P YAGLOU

#### Report of Committee to Determine the Value of X-Ray Film with Paper Base as a Substitute for Film with Gelatin Base

At a regular meeting of the Board of Trustees held in November 1936 a Committee to Determine the Value of X-Ray Film with Paper Base as a Substitute for Film with Gelatin Base was appointed as follows Dr Hollis E Potter, Chairman, Chicago, Dr Edward H Skinner, Kansas City, Mo, Dr H Kennon Dunham, Cincinnati, Dr J A Myers, Minneapolis, Dr Homer L Sampson, Trudeau, N Y

The Chairman has submitted the following as the report of the Committee

##### MAJORITY REPORT

Pursuant to your request of Nov 30, 1936, that a stipulated committee study and report on the value of paper base film as a substitute for cellulose or clear base film in x-ray studies of the chest, the undersigned beg to submit the following report The bill for expense is small, largely through the courteous cooperation of the Powers X-ray Products Company, which furnished generous quantities of paper film and developer to each man on the committee, and the Eastman Kodak Company, which furnished the requested number of clear base films, a laboratory assay of the scale of densities in penatometric units recorded by both types of film, and their series of opaque and clear base films made from the same chests

##### THE BASIC DIFFERENCES

The essential difference between opaque base film and transparent base film lies not in the character of the emulsion and not in the quality of materials used but in the fundamental fact that the opaque base roentgenogram must be viewed by reflected light, whereas the transparent base film is viewed by transmitted light A secondary difference is that in duplicated clear base film two intensifying screens can be used to advantage, which is not true of the single coated paper film

By increasing the intensity of the transmitted light in viewing translucent base film many details in the areas of deepest blackening are brought to view, whereas in the opaque base film greater light intensity on a blackened area brings forth no new details to the eye

Technically this limitation in paper base film is expressed as a limited scale of density record Under ordinary illumination Wilkey has found that the scale of paper is from 10 to 17 and with translucent film from 10 to 24 With translucent base film the scale is additionally increased by increasing the intensity of the transmitted light when viewing

The practical result of this limited density scale on the part of paper base film is that it has less latitude of exposure, it stands overexposure very poorly, and it fails to give the full scale of density contrast in the heavy individual

## CLAIMS

However, the manufacturers of paper base film do not claim its all around equality to transparent base film. They do not "push" it as a substitute for regular film, in which at least a stereo pair is considered a minimum basis for definitive study. They recommend it as a cheaper, efficient medium for use in group chest studies. They consider it quite adequate in the "sifting process" now in vogue in large groups of school children, industrial workers, college students and other social groups. They would consider it a reliable medium to spot out the infected cases, which can then be further studied by x-rays in such more exhaustive manner as desired.

Manufacturers of transparent base film point out the limited density scale of paper base film and emphasize their efforts to increase the scale of their own product to give the inexperienced technician greater latitude for exposure. They mention group surveys in which a high percentage of both opaque and clear base films have to be thrown out because of poor technical handling. They, however, would be pleased to manufacture the paper base product if it should meet with a general demand.

## FINDINGS

Your Committee desires to approve of paper base film for all such chest studies as lie well within its scope of reliability and usefulness, with the following reservations:

1 We believe it is possible to miss a small percentage of minimal tuberculous lesions in the use of clear base film and that a somewhat larger percentage of minimal lesions are bound to be missed in the use of paper base film. These minimal lesions are fortunately not a high percentage of those found in any chest survey.

2 Understanding the aforementioned limitations in paper base film, we would believe its greatest field of usefulness to lie in the "group sifting" process as carried on among children in public and private schools, up to a body weight of about 150 pounds. For this purpose we believe the paper film to be infinitely better than no film at all. We cannot but be influenced by the scores of testimonial letters stating the results of group chest surveys by paper film in many cities and states. Some of these have been checked and verified by clear base film.

3 We believe that the narrower density scale of paper base film is not such as to prevent one with a good technic from doing a useful and reliable survey of the chests of thin and medium weight adults. In institutions it has been found valuable in following up known lesions. Where "extent of involvement" is the only problem, paper film may answer very well. To depict the "character of a lesion" and to gain information which will most valuably aid in determining the "type of a lesion," its "prognosis," "arrest," "tendency toward healing," and so on, no x-ray method has been devised that will approach a periodic check with stereo films of the clear base type.

We further believe that when the presence of a lesion has been demonstrated by paper film a more exhaustive study should be made on clear base film.

4 For individual or group chest study of individuals of portly character or body weight beyond 150 pounds the narrow scale of density record in opaque base film presents difficulties which increase in rapid measure as body weight and chest wall increases. The higher voltage required means lack of contrast, and scattered rays have an important role. Results are obtained which cannot be reliably depended on when speaking of the minor grades of tuberculosis or occupational disease. Not only the character but even the presence of a lesion may be indeterminate. Your Committee realizes the limited usefulness of paper film in heavy individuals and discourages its use.

5 The matter of cost. Paper is definitely cheaper. Any discussion of total costs in group surveys must include cost of exposing and processing. Costs with either opaque or clear base film can be greatly reduced by clever devices especially adapted to the problem. We find that for handling paper film

more ingenious devices have been developed for group work than are ordinarily used in connection with clear base film. These devices however are not suitable for the study of individual cases or small groups.

Your Committee regrets that no simpler answer can be agreed on in this rather technical and complex problem.

Respectfully submitted

HOLLIS E. POTTER, Chairman.  
EDWARD H. SKINNER  
H. L. SAMPSON

## MINORITY REPORT

OF DR. KENNON DUNHAM

Dr. Dunham approves the report in general but wishes the paragraph numbered 1 under "Findings" to contain his impressions as to the percentage importance of missing early lesions by paper film.

He writes as follows: "If possible, I would like to have you embody one thought of which I have previously written you. I recommend that we emphasize the fact that the few lesions overlooked by a paper survey are quite large in proportion."

"Let us assume that six pulmonary lesions have been found in one thousand examinations, and that paper only overlooked two. That is not two to a thousand, but two out of eight, or a fourth of the lesions. I am certain that this is not an exaggeration, because taking early known lesions as shown by films, and retaking them by paper and single films we completely overlooked two out of ten and threw out two cases because I thought that the paper technic might be not good enough. I am sure that the two thrown out showed much better than would generally be used."

"To repeat: Four lesions were overlooked in twelve exposures on paper, which were easily shown on films. When two of the twelve were eliminated, we had two overlooked out of ten. That is not two out of a thousand but two out of ten, or one fifth, or 20 per cent, were completely overlooked—one fifth or one fourth, not 0.002 per cent."

"Such facts should be clearly stated, otherwise advertisements of the value of paper films will be very misleading."

## MINORITY REPORT

OF DR. J. A. MYERS

Dr. Myers says: "With few exceptions I feel this report is satisfactory. The exceptions are as follows:

1 In the next to the last paragraph of the section entitled 'The Basic Difference,' discussing "limited scale of density record," I fully appreciate the point you have made. However, in actual practice with reference to the detection of tuberculous lesions of significance, I have not found it of any importance. Therefore, I believe that part of the scale of density beyond 17 carries us into a field that is not significant from the standpoint of finding tuberculous lesions, such as the chest specialists are interested in finding. Anything that is detected beyond the scale of density of the paper film is too indefinite to do anything more than arouse suspicion. In other words I do not feel this is a practical point, therefore in the final paragraph under 'The Basic Difference' were omitted. I would be in full agreement with you."

2 In item 1 under "Findings," attention is called to the fact that we miss a small percentage of minimal lesions on both clear base and paper base film. However, it has been my experience that a somewhat larger percentage of significant minimal lesions are missed with paper base than with clear base film. If this statement concerning the missing of minimal lesions on the paper base film could be omitted I would have no objection to signing the report, as far as this paragraph is concerned.

3 In items 3 and 4, body weight of the individual is considered. I do not see how we could place a limit on body weight. For example, in this section of the country we have a great many tall but well built individuals who weigh more than 150 pounds with whom we have no difficulty in procuring excellent chest films on both paper and clear base. On the other hand, with obese individuals I have seen first class technicians fail to produce satisfactory films of the chest on both paper and clear base films. If you could limit

paragraph to obese persons rather than those of over 150 pounds, and point out that difficulty is encountered with both clear base and paper base films, I would be in favor of the statement"

#### Report of the Committee on Scientific Research for 1937

During the year, seventy applications received consideration and forty-seven grants were made. As heretofore the new grants support research in various fields of medical interest. Almost without exception, the money has been turned over to the financial officer of the institution in which the grantee works, with the understanding that it would be subject to requisitions by the grantee and that an accurate account of the

#### Financial Statement for 1937

Balance Jan 1 1937	\$ 6 688 42
Appropriation for 1937	13 750 00
Refund grant 338	18 00
Refund grant 361	48 23
Refund grant 408	50 00
Refund grant 424	193 00
Refund grant 429	2 32
	\$20 749 97

#### GRANTS AND EXPENSES PAID IN 1936

Grant 437 Alexander S Wiener	\$ 200 00
Grant 438 Irving Graef	300 00
Grant 439 Moore A Mills	300 00
Grant 440 M M Wintrobe	200 00
Grant 441 Edward S West and G E Burget	350 00
Grant 442 S J Crowe	480 00
Grant 443 Ernest Carroll Faust	300 00
Grant 444 George Herrmann	300 00
Grant 445 Paul M Levin	250 00
Grant 446 Samuel Soskin	500 00
Grant 447 R C Herrin	400 00
Grant 448 Warren H Cole	500 00
Grant 449 Charles W Turner	250 00
Grant 450 Harry Sobotka and Louis J Soffer	250 00
Grant 451 CoTui	200 00
Grant 452 G Albin Matson	100 00
Grant 453 L T Samuels and C H Thienes	300 00
Grant 454 George M Curtis	600 00
Grant 455 Elizabeth S Russell	225 00
Grant 456 Ira A Manville	500 00
Grant 457 James B Hamilton	450 00
Grant 458 Orthello R Langworthy	350 00
Grant 459 John S Lawrence	450 00
Grant 460 M G Seelig	250 00
Grant 461 Roe E Remington	400 00
Grant 462 Lay Martin	200 00
Grant 463 Jay Conger Davis	600 00
Grant 464 Frank W Allen	200 00
Grant 465 Fred L Hummoller	300 00
Grant 466 G Louis Weller Jr	275 00
Grant 467 B O Barnes	300 00
Grant 468 Valy Menkin	300 00
Grant 469 Joseph Krafka Jr	370 00
Grant 470 Peter Heinbecker	350 00
Grant 471 Timothy Leary	500 00
Grant 472 Margaret Lasker	200 00
Grant 473 Roy H Turner	400 00
Grant 474 Marion Fay	275 00
Grant 475 Joseph T King	375 00
Grant 476 D B Phenuster and Keith Grimson	400 00
Grant 477 Irving J Wolman	335 00
Grant 478 Martin Silberberg	600 00
Grant 479 Tracy J Putnam	200 00
Grant 480 Amy L Daniels	250 00
Grant 481 Warren O Nelson	200 00
Grant 482 Warren O Nelson	400 00
Grant 483 J M Johnin	250 00
Clerical Expense	600 00
Committee Expense	282 40
Printing Supplies	21 58
	\$16 589 78
Balance on hand	\$ 4 161 19

expenses would be kept. The final or practically final results of work under forty three grants have been published or are in the course of publication. The results of the work under fifteen grants prior to 1937 are being prepared for publication.

Under thirty-one grants prior to 1937, active work is still in progress, in several cases, reports on results have been published. Refunds amounting to \$311 55 have been made during the year of unexpended balances from grants.

The committee recommends that the same appropriation be made for 1938 as for 1937, namely, \$12,500 for grants in aid of medical research and \$1,200 for committee expenses.

The financial statement for 1937 is presented, also brief accounts of grants pending at the end of 1936 and a list of grants made in 1937.

Respectfully submitted

COMMITTEE ON SCIENTIFIC RESEARCH OF  
THE AMERICAN MEDICAL ASSOCIATION  
LUDVIG HEKTOEN, Chicago, Chairman  
Term expires, 1941  
JOHN J MORTON, Rochester, N Y  
Term expires, 1938  
N W JONES, Portland, Ore  
Term expires, 1939  
MARTIN H FISCHER, Cincinnati  
Term expires, 1940  
C C BASS, New Orleans  
Term expires, 1942

#### GRANTS OF COMMITTEE ON SCIENTIFIC RESEARCH NEW GRANTS—1937

Grant 437 Alexander S Wiener Jewish Hospital of Brooklyn \$200 agglutinogens in human blood  
Grant 438 Irving Graef New York University \$300 pulmonary reactions to lipids and mineral oils  
Grant 439 Moore A Mills Northwestern University Medical School \$300 experimental pulmonary tuberculosis in the dog  
Grant 440 M M Wintrobe Johns Hopkins University \$200 red corpuscles  
Grant 441 Edward S West and G E Burget University of Oregon Medical School \$350 diuretic action and chemical metabolism of sorbitol  
Grant 442 S J Crowe Johns Hopkins University \$480 physiology of hearing  
Grant 443 Ernest Carroll Faust Tulane University \$300 epidemiology of trichinosis in New Orleans  
Grant 444 George Herrmann University of Texas Galveston \$300 chemistry of the heart muscle  
Grant 445 Paul M Levin Johns Hopkins University \$250 cerebral efferent tracts in primates  
Grant 446 Samuel Soskin Michael Reese Hospital Chicago \$500 hormone assay of blood and urine in endocrine dysfunction  
Grant 447 R C Herrin University of Wisconsin \$400, urea clearance  
Grant 448 Warren H Cole University of Illinois College of Medicine \$500 cholesterol tolerance as an index of hyperthyroidism and study of excretory function of the liver  
Grant 449 Charles W Turner University of Missouri \$250 pituitary hormones  
Grant 450 Harry Sobotka and Louis J Soffer Mount Sinai Hospital New York \$250 lactic acid tolerance in hepatic disease  
Grant 451 CoTui New York University \$200 Shwartzman phenomenon and pyrogenic reaction  
Grant 452 G Albin Matson Montana State University Missoula \$100 antigenic properties of certain chemical substances  
Grant 453 L T Samuels and C H Thienes University of Southern California \$300 hypophysis in metabolism of carbohydrate fat and metabolism  
Grant 454 George M Curtis Ohio State University \$600 iodine and calcium balance in thyroid disease  
Grant 455 Elizabeth S Russell Roscoe B Jackson Memorial Laboratory Bar Harbor Me \$225 genetics of tumors in the fruit fly  
Grant 456 Ira A Manville University of Oregon Medical School \$500 relation of degenerative changes in connective tissue to glycuronic metabolism  
Grant 457 James B Hamilton Albany Medical College \$450 testicular descent by administration of male hormone  
Grant 458 Orthello R Langworthy Johns Hopkins University \$350 effect of ovulation and pregnancy on smooth muscle of urinary bladder  
Grant 459 John S Lawrence Strong Memorial Hospital Rochester N Y \$40 antiserum for white blood cells  
Grant 460 M G Seelig Barnard Free Skin and Cancer Hospital St Louis \$500 carcinogenicity of benzo(a)pyrene hydrocarbon  
Grant 461 Roe E Remington Medical College of the State of South Carolina \$400 quantitative effect of iodine deficiency in the rat.



- Grant 462 Lay Martin, Johns Hopkins University \$200 gastric juice
- Grant 463 Jay Conger Davis Minneapolis \$600 action of certain drugs on the coronary arteries
- Grant 464 Frank W Allen University of California, \$200 relation of nucleotide fraction of red corpuscles to glycolysis
- Grant 465 Fred L Humoller Loyola University School of Medicine Chicago \$300 toxic principles in culture fluids of *Bacterium enteritidis*
- Grant 466 G Louis Weller Jr, George Washington University \$275, effect of sodium pyruvate and other substances on vitamin B deficiency
- Grant 467 B O Barnes Rush Medical College \$300 extract of adrenals
- Grant 468 Vally Menkin Harvard Medical School \$300 mechanism of inflammation
- Grant 469 Joseph Krafka Jr University of Georgia School of Medicine \$370 elastometric measurements on smooth muscle and connective tissue
- Grant 470 Peter Heinbecker Washington University School of Medicine \$350 pituitary regulation of water exchange and effect of diet on dextrose tolerance and insulin response in dogs
- Grant 471 Timothy Leary Office of Medical Examiner Boston \$500 early atherosclerotic processes and relation of cholesterol to neoplastic growth
- Grant 472 Margaret Lasker Yonkers N Y \$200 incidence of pentosuria and fructosuria
- Grant 473 Roy H Turner Tulane University \$400 physiology of blood vessels in man
- Grant 474 Marion Fay Woman's Medical College of Pennsylvania, \$275 biochemistry of strontium
- Grant 475 Joseph T King University of Minnesota \$375 physiology of sulfanilamide
- Grant 476 D B Phemister and Keith Grimson University of Chicago \$400 effect of sympathectomy in dogs
- Grant 477 Irving J Wolman University of Pennsylvania \$335 lipid pneumonia
- Grant 478 Martin Silberberg Washington University School of Medicine \$600 influence of hormones on bone growth
- Grant 479 Tracy J Putnam Boston City Hospital \$200 injuries to the cervical cord
- Grant 480 Amy L Daniels State University of Iowa \$250 relation of fluorine to physiologic function
- Grant 481 Warren O Nelson Wayne University College of Medicine Detroit \$200 synthetic androgenic substances
- Grant 482 Warren O Nelson Wayne University College of Medicine Detroit \$400 effect of thymus gland on the growth of rats
- Grant 483 J M Johlin Vanderbilt University School of Medicine, \$250, attenuation of toxins by interfacial adsorption

## STATE OF WORK UNDER PREVIOUS GRANTS

## 1 COMPLETED DURING THE YEAR

- Grant 179 1930 George T Pack Memorial Hospital New York, \$300 certain clinicopathologic problems of melanoma See grant 231 1932 Adair, F E Treatment of Melanoma, *Surg Gynec & Obst* 62 406 1936 See chapter on Skin in the Treatment of Cancer and Allied Diseases by George T Pack and Edward M Livingston to be published by Paul B Hoeber, Inc New York
- Grant 231 1932 George T Pack, Memorial Hospital New York \$500 complete analysis of 300 cases of melanoma (refund \$65 76) See grant 179, 1930
- Grant 297, 1933 Erma A Smith Iowa State College \$150 effect on the rat of sublethal amounts of illuminating gas Smith Erma McMillan E and Mack Lillian Factors Influencing the Lethal Action of Illuminating Gas *J Indust Hyg* 17 18 1935 Williams I R and Smith Erma Blood Picture Reproduction and General Condition During Daily Exposure to Illuminating Gas *Am J Physiol* 110 611, 1935 Smith, Erma and Kim C W The Blood Sugar During Asphyxia by Illuminating Gas, *Proc Am Physiol Soc* 49 149 1937
- Grant 317 1934 M D Overholser, University of Missouri \$300 experimental growths in genital tract of monkeys and relation of anterior hypophysis to diabetes Nelson W O and Overholser Milton D Effect of Oestrin Injections upon Experimental Pancreatic Diabetes in the Monkey *Proc Soc Exper Biol & Med* 32 150 1934 Overholser M D and Nelson W O Migration of Nuclei in Uterine Epithelium of Monkey Following Prolonged Estrin Injections *Proc Soc Exper Biol & Med* 34 839 1936 Nelson W O and Overholser M D The Effect of Estrogenic Hormone on Experimental Pancreatic Diabetes in the Monkey *Endocrinology* 20 473 1936 Nelson W O and Overholser M D The Control of Diabetes in Depancreatized Animals by the Injection of Oestrin *Proc Missouri Acad Sci* 1 138, 1934 1935
- Grant 338 1934 W W Brandes Baylor University \$150 the effect of acidosis on antibodies and resistance to infection (refund \$18) Brandes W W and Cairns A B The Effect of Experimental Acidosis on the Production of Immune Bodies in the Rabbit *J Immunol* 32 137 1937
- Grant 345 1934 Emile Holman Stanford University School of Medicine \$400 study by Frederick Fender of prolonged stimulation of the nervous system See grant 377 1935 Fender Frederick A. Epileptiform Convulsions from Remote Excitation *Arch Neurol & Psychiat* 37 259 1937

Grant 346, 1934 William Antopol Mount Sinai Hospital New York, \$250 relationship of acetylcholine to carbohydrate metabolism Tuchman Lester Schifrin Arthur and Antopol William Blood Amylase Response to Acetyl Beta Methylcholine Chloride in Pancreatized Dogs *Proc Soc Exper Biol & Med* 33 142 1935 Schifrin, Arthur Tuchman Lester and Antopol William Blood Amylase Response to Acetyl Beta Methylcholine Chloride in Rabbits *ibid* 34 539 1936 Antopol William Tuchman Lester and Schifrin Arthur Choline Esterase Activity of Human Sera with Special Reference to Hyperthyroidism *ibid* 36 48 1937

Grant 353 1935 Frank R Menne University of Oregon Medical School \$500 metabolism of cholesterol in rabbits (refund \$10.5) Menne Frank R, Beeman Joseph A P and Labby Daniel H Cholesterol Induced Arteriosclerosis in Rabbits, with Variations Due to Altered Status of Thyroid *Arch Path* 24 612 1937

Grant 360 1935 A M Wright J J Mulholland and F W CoTui, New York University \$300 physiology of sympathetomized dogs (refund \$1 30) CoTui Burnstein Charles L and Wright Arthur M The Effect of Sympathectomy on the Sensitivity to Adrenalin of the Bronchioles *J Pharmacol & Exper Therap* 58 33 1936 McCloskey K Leora CoTui Frank W Mulholland John and Wright Arthur M Adrenaline Necrosis After Sympathectomy *J Lab & Clin Med* 22 377 1936

Grant 362, 1935 Lloyd H Ziegler and Arthur Knudson Albany Medical College \$100 activity after recovery from rickets See grant 393 1936 Ziegler Lloyd H and Knudson Arthur Qualitative Analysis of Activity after Recovery from Rickets *J Comp Psychol* 24 119 1937

Grant 363 1935 Rachel E Hoffstadt University of Washington \$100 protein and carbohydrate fractions of *Staphylococcus aureus* Hoffstadt Rachel E and Clark Wesley M The Chemical Composition and Antigenic Properties of Fractions of the Smooth and Rough Strains of *Staphylococcus Aureus* *J Infect Dis* to be published

Grant 366 1935 G E Burget University of Oregon Medical School, \$500 physiology of cardiac portion of stomach Burget G E and Zeller W E A Study of the Cardia in Unanesthetized Dogs *Proc Soc Exper Biol & Med* 34 433 1936 Zeller Werner and Burget G E A Study of the Cardia *Am J Digest Dis & Nutrition* 4 113 1937

Grant 368 1935 Felix Saunders, University of Chicago \$250 growth factors for bacteria See grant 399 1936 Saunders Felix Finkle I I Sternfeld Leon and Koser Stewart A Some Chemical Properties of an Essential Growth Factor for Pathogenic Bacteria *J Am Chem Soc* 59 170 1937 Koser Stewart A Finkle R D Dorfman A and Saunders, Felix Studies on Bacterial Nutrition The Possible Role of Inorganic Salts and of Alterations in the Culture Medium in Promoting Growth Promoting Effects *J Infect Dis* to be published Koser Stewart A Finkle R D Dorfman A Gordon Mary V, and Saunders Felix Studies on Bacterial Nutrition A Comparative Study of the Growth Promoting Properties of Various Substances *ibid* to be published Saunders Felix and others Some Chemical Properties of a Growth Factor for Pathogenic Bacteria *J Am Chem Soc* in course of publication Saunders Felix and others Precipitation Studies on Growth Factors for Pathogenic Bacteria, *ibid*, in course of publication Saunders Felix and others Solubility Studies on Growth Factors for Pathogenic Bacteria, *ibid* in course of publication

Grant 369 1935 Harold Jeghers, Boston University School of Medicine \$150 vitamin A deficiency in certain diseases Jeghers Harold Night Blindness Due to Vitamin A Deficiency A Consideration of Its Importance in Traffic Problems *New England J Med* 216 51 1937 Jeghers Harold Night Blindness as a Criterion of Vitamin A Deficiency Review of the Literature with Preliminary Observations of the Degree and Prevalence of Vitamin A Deficiency among Adults in Both Health and Disease, *Ann Int Med* 10 1304 1937

Grant 377 1935 Frederick A Fender Stanford University School of Medicine \$600 prolonged stimulation of parts of the nervous system See grant 345, 1934

Grant 381, 1935 John R Murlin University of Rochester Medical School \$600 testis hormone See grant 414, 1936 Kochakian C D and Murlin J R The Relationship of the Synthetic Male Hormone, Androstendion to the Protein and Energy Metabolism of Castrate Dogs and the Protein Metabolism of a Normal Dog *Am J Physiol* 117: 612 1936 Kochakian, Charles D Excretion of Male Hormones *Endocrinology* 21 60 1937 Kochakian Charles D Testosterone and Testosterone Acetate and the Protein and Energy Metabolism of Castrate Dogs *ibid* p 750

Grant 385 1935 Erwin Brand and G F Cahill New York State Psychiatric Institute and Hospital \$200 cystinuria (refund 66 cents) Brand Erwin Block R J and Cahill G F Cystinuria Metabolism of Hydroxy Analogue of Methionine *J Biol Chem* 110 681 1937 Brand Erwin Block R J and Cahill G F Cystinuria Metabolism of S-Methylcysteine of  $\gamma$ -Thiobutyric Acid and of  $\gamma$ -Dithiodibutyric Acid *ibid* p 689 Brand Erwin Block R J Kassell B and Cahill G F Cystinuria Metabolism of Casein and Lactalbumin *ibid* p 689

Grant 387 1935 George D Snell Roscoe B Jackson Memorial Laboratory Bar Harbor Maine \$500 hereditary changes in germ cells of mice (refund \$20) Snell George D A Study of the Hereditary Changes Produced in the Germ Cells of Female Mice by X Rays and the Abnormalities of Development Resulting Therefrom *J Exper Zool* 1 in course of publication

Grant 389 1935 Tracy J Putnam Boston City Hospital \$150 mechanism of cortical atrophy in dementia paralytica Met H Houston Putnam, Tracy J, and Campbell A C *Path. Soc. Lond.*

the Cortical Atrophy Observed in Dementia Paralytica *Arch Neurol & Psychiat* 37 75 1937

Grant 390 1935 Abraham White Yale University \$100 chemistry and metabolism of the sulfur of proteins (refund \$8.25) See grant 429 1936 White A and Fishman J B The Formation of Taurine by the Decarboxylation of Cysteic Acid *J Biol Chem* 116 457 1936 See grant 429 1936 Stern Kurt G and White Abraham Studies on the Constitution of Insulin I Properties of Reduced Insulin Preparations *ibid* 117 95 1937 White Abraham and Stern Kurt G Studies on the Constitution of Insulin II Further Experiments on Reduced Insulin Preparations *J Biol Chem* 119 215 1937

Grant 393 Lloyd H Ziegler and Arthur Knudson Albany Medical College \$165 effect of rickets on activity of rats See grant 362 1935

Grant 396 Valy Menkin Harvard Medical School \$600 iron metabolism and effect of ferric chloride on tuberculosis See grant 468 1937 Lorenz Egon and Menkin Valy Experimental Siderosis III Spectroscopic Studies on Iron Containing Pigment *Arch Path* 22 82 1936 Menkin Valy A Summary of Studies on the Effect of Ferric Chloride on Tuberculous Rabbits *Proc Soc Exper Biol & Med* 34 262 1936 Menkin Valy and Warner Charlotte R Significance of Carbohydrate Metabolism and Local Acidosis in Inflammation *ibid* p 594 Menkin Valy Studies on Inflammation VII Mechanism of Increased Capillary Permeability a Critique of the Histamine Hypothesis *J Exper Med* 64 485 1936 Menkin Valy and Warner Charlotte R Studies on Inflammation VIII Carbohydrate Metabolism Local Acidosis and the Cytological Picture in Inflammation *Am J Path* 13 25 1937 Menkin Valy Tolerance Tests with Ferric Chloride on Advanced Tuberculosis Patients *Am Rev Tuberc* 35 134 1937 Menkin Valy Isolation and Properties of the Factor Responsible for Increased Capillary Permeability in Inflammation *Proc Soc Exper Biol & Med* 36 164 1937 Menkin Valy Mechanism of Inflammation *Arch Path* 24 65 1937

Grant 399 1936 Felix Saunders University of Chicago \$250, essential growth factor for bacteria See grant 368 1935

Grant 400 1936 John Field Stanford University \$200 effect of dimethylphenol on the lens Field J II Tainter E G Martin A W and Belding H S Studies on the Oxygen Consumption of the Rabbit Lens and the Effect of 2,4-Dimethylphenol Thereon *Am J Ophthalm* 20 779 1937

Grant 403 1936 Samuel Soskin Michael Reese Hospital Chicago \$750 laboratory tests for endocrine dysfunctions See grant 446 1937 Freed S C Garvin T and Soskin Samuel Participation of Ovarian Factors Other than Estrin in the Estrus Phenomenon *Proc Soc Exper Biol & Med* 35 409 1936 Freed S C and Soskin Samuel On the Evaluation of the Potency of Estrogenic Substances *Endocrinology* 20 863 1936 Freed S C and Soskin Samuel Complete and Incomplete Estrogenic Hormones Arising from Different Sites in the Rat's Ovary *ibid* 21 599 1937 Freed S C and Hechter O The Extraction of Both the Gonadotropic and (Free or Total) Estrogenic Hormones from a Single Urine Sample *ibid* 20 396 1936

Grant 404 1936 Peter Heinbecker Washington University St Louis \$750 mechanism of altered sensitivity of smooth musculature to epinephrine See grant 470 1937 Heinbecker Peter Studies on the Sensitivity of Smooth Musculature to Exogenous Epinephrine *Am J Physiol* 120 401 1937 Heinbecker Peter and Bishop George H Mechanism of Spastic Vascular Disease and Its Treatment *Ann Surg* to be published

Grant 405 1936 M M Wintrobe Johns Hopkins University \$200 vertebrate red corpuscles See grant 440 1937 Wintrobe M M Studies of Blood Formation in the Fetus and New Born III The Relation of Antianemic Principle Assay of Fetal Liver and Placental Extracts in Cases of Pernicious Anemia and in Mosquito Larvae *Am J Med Sci* 193 449 1937

Grant 406 1936 Helen C Coombs New York Homeopathic Medical College \$200 action of acetylcholine on the central nervous system (refund 66 cents) Coombs Helen C and Cope Otis M Arrest of Experimental Convulsions by Acetylcholine in the Cat *Proc Soc Exper Biol & Med* 34 483 1936

Grant 408 Gustav J Martin Trudeau Sanatorium Trudeau N Y \$700 lipoids or tubercle bacilli (refund \$50) Martin Gustav J and Steenken William Jr Chemical Studies of the Dissociants of the H 37 Human Tubercle Bacillus *J Bact* to be published

Grant 409 1936 Lester R Dragstedt and G M Dack University of Chicago \$600 relation of B necrophorum to chronic ulcerative colitis in man Dack G M Dragstedt Lester R and Herz Theodore E Further Studies on Bacterium Necrophorum Isolated from Cases of Chronic Ulcerative Colitis *J Infect Dis* 60 335 1937

Grant 411 Fae D Wood University of California at Los Angeles \$125 distribution of Trypanosoma cruzi in southwestern United States World Fae D and Wood Sherwin F Distribution of Trypanosoma Cruzii in Southwestern United States *Am J Trop Med* to be published

Grant 414 1936 John R Murlin University of Rochester School of Medicine and Dentistry \$600 testis hormone See grant 381

Grant 417 1936 Isaac Schour University of Illinois College of Dentistry \$400 parathyroids in calcium metabolism Schour Isaac Chandler S B and Tweedy W R Changes in the Teeth Following Parathyroidectomy I The Effects of Different Periods of Survival Fasting and Repeated Pregnancies and Iactations on the Incisor of the Rat *Am J Path* 13 945 1937 Schour Isaac Tweedy W R Chandler S B and Engel M B Change in the Teeth Following Parathyroidectomy II The Effect of Parathyroid Extract and Calciferol on the Incisor of the Rat *ibid* p 971

Grant 419 1936 Carl A Dragstedt Northwestern University Medical School \$250 role of histamine and of adrenal cortex extract in anaphylaxis in the dog Dragstedt Carl A Mills Moore A and Mead Franklin H Adrenal Cortex Extract in Canine Anaphylactic Shock *J Pharmacol & Exper Therap* 59 359 1937

Grant 421 1936 W R Tweedy Loyola University Chicago \$150 action of parathyroid extract Tweedy Wilbur R and McNamara Edward W Effect of Administration of Parathyroid Extract on Serum Calcium Level in the Nephrectomized Rat *Proc Soc Exper Biol & Med* 35 414 1936 McJunkin F A Tweedy W R and McNamara E W Effect of Parathyroid Extract and Calciferol on the Tissues of the Nephrectomized Rat *Am J Path* 13 525 1937

Grant 422 1936 T Grier Miller Hospital of University of Pennsylvania \$300 chemical composition of human succus entericus and absorption of dextrose from small intestine Abbott Karr and Miller Factors Concerned in the Absorption of Glucose from the Jejunum and Ileum *Am J Digest Dis & Nutrition* to be published Abbott and Johnston A Nonsurgical Method of Treating Localizing and Diagnosing the Nature of Obstructive Lesions of the Small Intestine *Surg Gynec & Obst* to be published

Grant 424 1936 Charles P Sheldon Albany Medical College \$200 respiration in pregnancy and labor (refund \$193) Sheldon Charles P Obstetrical Analgesia and Anesthesia An Experimental Study in course of publication

Grant 425 1936 William J Turner State Tuberculosis Sanatorium Cresson Pa \$50 uroporphyrins Turner William J Studies on Porphyria Observations on the Fox Squirrel *Sciurus Niger* *J Biol Chem* 118 519 1937

Grant 426 H P Smith State University of Iowa \$500 blood clotting Smith H P Warner E D and Brinkhaus K M Prothrombin Deficiency and the Bleeding Tendency in Liver Injury (Chloroform Intoxication) *J Exper Med* 66 801 1937

Grant 429 1936 Abraham White Yale University \$100 sulfur of protein (refund \$2.32) See grant 390 1935

Grant 432 1936 Roe E Remington Medical College of the State of South Carolina \$200 quantitative effect of iodine deficiency in the rat See grant 461 1937 Remington Roe E Improved Growth in Rats on Iodine Deficient Diets *J Nutrition* 13 223 1937 Remington Roe E Remington John W and Welch Sarah S The Thyroid Gland of the Normal Rat Size Dry Matter and Iodine Content *Anat Rec* 67 367, 1937

Grant 437 1937 Alexander S Wiener Jewish Hospital of Brooklyn \$200 agglutinogens in human blood Landsteiner Karl and Wiener Alexander S On the Presence of M Agglutinogens in the Blood of Monkeys *J Immunol* 33 19 1937 Herman Morris and Derby Irving M The Blood Groups and M N Types in Mental Diseases *ibid* 33 87 1937

Grant 450 1937 Harry Sobotka and Louis J Soffer Michael Reese Hospital Chicago \$250 lactic acid tolerance in hepatic disease Soffer Louis J Dantes D Alfred and Sobotka Harry Sodium D Lactate Blood Clearance as a Test of Liver Function *Proc Soc Exper Biol & Med* 36 692 1937 Soffer Louis J Dantes D Alfred and Sobotka Harry Metabolism of Sodium D Lactate Utilization of Intravenously Injected Na d Lactate by Normal Individuals *Arch Int Med* to be published Soffer Louis J Dantes D Alfred and Sobotka Harry Metabolism of Sodium-d Lactate Utilization of Intravenously Injected Na d Lactate by Patients with Acute Diffuse Parenchymal Disease of the Liver, *ibid* to be published

## 2 INCOMPLETE

A Work under the grant completed account rendered of expenses but results not published fully

Grant 174 1930 Alfred R Roos College of Medical Evangelists Loma Linda Calif \$1453 hay fever pollens in the Southwest

Grant 286 1933 F H Pike Columbia University \$600 the effects of successive experimental lesions of the nervous system

Grant 308 1935 John L Ulrich Johns Hopkins University \$250 the reflex system in the cat See grant 372 1935

Grant 309 1933 Carroll L Birch University of Illinois School of Medicine \$300 assay of urine for ex hormone of the anterior pituitary

Grant 356 1935 Jay C Davis University of Minnesota \$500 coronary flow and lesions of the aortic valves See grant 463 1937

Grant 365 1935 Ludwig A Fmg Stanford University School of Medicine \$500 effect of castration on malignant tumors

Grant 367 1935 Robert Gault and A C Ivy American Institute for the Deaf Blind Evanston Ill \$600 mechanical stimulation of the vibratile organs See grant 412 1936

Grant 372 1935 John L Ulrich Johns Hopkins University \$450 cerebral functions in the action of antagonistic muscles See grant 308 1935

Grant 378 1935 Wallace M Later Georgetown University Hospital Washington D C histopathologic basis of bundle branch block

Grant 382 1935 L Goodman A J Geiger and L Claiborn Yale University \$250 antianemic principle See grant 340 1934

Grant 412 1936 Robert H Gault and A C Ivy American Institute for the Deaf Blind Evanston Ill \$400 stimulation of vibratile organs by mechanical vibrations See grant 367 1935

Grant 418 1936 Frank W Allen University of California \$200 nucleotide of the red corpuscles See grant 464 1937

Grant 428 1936 D B Plemmer K Grimson and H Wilson University of Chicago \$200 effect of sympathectomy on blood pressure in dog See grant 476 1937

Grant 430 1936 S W Ranson Northwestern University Medical School \$315 fever producing agents

Grant 431 1936 Benjamin Harrow College of the City of New York \$200 purification of the hyperglycemic factor in urine

## B ACTIVE WORK STILL IN PROGRESS

Grant 24 1922 J Isid Williams R H Medical College Chicago \$700 decreased dextrose tolerance in acute infectious diseases

Grant 277 1933 Gustav Zeckel University of Illinois College of Medicine \$260 study of growing malignant cells by moving photomicrographs Zeckel Gustav and Morgenster O A Timing Device for Telling Motion Pictures *Science* 81 23 1935

Grant 310 1934 Fay Martin Johns Hopkins University, \$150, study of gastric juice See grant 462 1937

Grant 324 1934 William deß Mevender, University of North Carolina \$285 study of artificial circulation in the kidney

Grant 337 1934 James L O'Leary Washington University, \$245, Loven reflexes

Grant 343 1934 John Guttman Post Graduate Medical School and Hospital \$400 relation between electrical disturbances in cochlea and the sensation of hearing Guttman John and Harrer S E The Electrical Potentials of the Cochlear and Auditory Nerve in Relation to Hearing *Am J Physiol* 120 666 1937

Grant 344 1934 Paul I Dry and W C Iringson University of Arkansas School of Medicine \$300 effect of withdrawal of vitamin G from diet of monkeys

Grant 348 1935 Phillips Thygeson State University of Iowa \$400, trachoma and inclusion virus disease of the genito-urinary tract Thygeson Phillips and Mengert W T The Virus of Inclusion Conjunctivitis *Arch Ophth* 15 377 1936

Grant 350 1935 Frederic A Gibbs Harvard University School of Medicine \$100 fiber system in the cat's brain concerned in convulsions Gibbs Erna Leonhardt and Gibbs Frederic Andrews A Purring Center in the Cat's Brain, *J Comp Neurol* 64 209 1936

Grant 355 1935 Royall M Calder San Antonio Texas \$150 mechanism of pneumococcal inflammation

Grant 370 1935 Richard L Crouch University of Missouri \$500, connections of diencephalon

Grant 379 1935 Victor C Myers (Donald E Bowman) Western Reserve Medical School \$650 chemical test for pregnancy

Grant 380 1935 N W Popoff Highland Hospital Rochester, N Y, \$600 arteriovenous anastomosis

Grant 386 1935 E V McCollum Johns Hopkins University \$150 adaptation of the eyes to subdued light and its relation to vitamin A (refund \$19 65)

Grant 388 1935 Tracy J Putnam Boston City Hospital Boston, \$150 effect of low voltage current on nervous system

Grant 397 1936 R T Hanzel Western Reserve University \$150 source of endogenous uric acid and the effects of methylated xanthines on its secretion

Grant 398 1936 George A Emerson West Virginia University, Morgantown \$175 metabolic products of sympathomimetic amines

Grant 401 1936 W T Dawson University of Texas Galveston \$200, toxicity of cardiac glucosides

Grant 402 1936 C H Thunes and f T Samuels University of Southern California \$500 carbohydrate metabolism as influenced by the hypophysis

Grant 407 1936 Ralph I Dorman Louisiana State University \$250 estrogenic substance in human urine and other estrogenic compounds

Grant 410 1936 H E Egger University of Nebraska, \$200 effect of tetra methyl ammonium gluconate on human cancer

Grant 413 1936 Philip Levine Newark Beth Israel Hospital Newark, N J \$350 bacteriophage action in the dysentery group Levine Philip and Perlstein David Phage Specific Heritable Factors in B Dysentriae *Sonne Proc Soc Exper Biol & Med* 36 295 1937

Grant 415, 1936 Gordon H Scott Washington University St Louis \$300 lead and aluminum in cerebrospinal fluid

Grant 416 1936 Jean Broadhurst, Teachers College Columbia University \$200 inclusion bodies in the female genital area

Grant 420 1936 Arthur Knudson Albany Medical College \$400, synthesis of cholesterol in the animal body

Grant 423 1936 Alfred Gilman Yale University \$300 physiology of the antidiuretic hormone of the posterior pituitary Gilman Alfred and Goodman Louis The Secretory Response of the Posterior Pituitary to the Need for Water Conservation *J Physiol* 90 113 1937

Grant 427 1936 Helen S Mitchell Massachusetts State College \$300 nutritional cataract in rats

Grant 433 1936 Frederick Lemere Eastern State Hospital Medical Lake Wash \$500 Berger brain rhythms in psychotic patients

Grant 434 1936 Wilbert H McGaw Western Reserve University \$500 sound conduction in fractured bones

Grant 435 1936 Warren O Nelson Wayne University College of Medicine Detroit \$300 effect of synthetic androgenic substances See grant 481 1937 Nelson Warren O and Merckel Charles C Effects of Androgenic Substances in the Female Rat *Proc Soc Exper Biol & Med* 36 823 1937 Nelson Warren O and Merckel Charles C Maintenance of Spermatogenesis in Testis of the Hypophysectomized Rat with Sterol Derivatives *ibid* p 825 Nelson Warren O and Nielman Jane Effect of Oestrone on Hypophyses and Reproductive Organs of Thyroidectomized Rat *ibid* p 828

Grant 436 1936 Albert P Krueger University of California \$300 nature of bacteriophage Krueger A P and Muddell J H Effect of Phage on Electrometric Potential of Susceptible Cells *Proc Soc Exper Biol & Med* 36 317 1937 Krueger A P The Mechanism of Bacteriophage Production *Science* 86 379 1937 Scribner E J and Krueger A P The Effect of NaCl on the Phage Bacterium Reaction *J Physiol* 21 1 1937 Krueger Albert P and Fong Jacob The Relationship Between Bacterial Growth and Phage Production *ibid* p 137

### 3 DISCONTINUED (No RESULTS PUBLISHED)

Grant 361, 1935 P L Heitmeyer University of Oregon Med School \$100 experimental uterine ovarian implants (refund \$48 23)

### Report of Committee on Therapeutic Research

The Committee on Therapeutic Research, a standing committee of the Council on Pharmacy and Chemistry, encourages scientific investigations in the field of therapeutics by providing funds for the prosecution of necessary research

During the year 1937 the Committee issued thirty one grants A detailed list of these grants, together with a list of publications during 1937, and of unexpired grants made before Jan 1, 1937, will be found in the appendix to this report

The following is a list of the investigations conducted with the assistance of grants made by the Committee on Therapeutic Research, reports of which were published during 1937

1 A Capillary Nonpenetrating Microquinhedron Electrode J A Pierce *J Biol Chem* 117 651 (Feb) 1937

2 Does Digitalis Protect Against Diphtheria Toxin, C W Edwards and R G Smith *J Pharmacol & Exper Therap* 61 37 (Sept) 1937

3 The Effect of Barbitol Derivatives on the Electrocardiogram, Robert Hafke and Winona MacCalmont *Am J Physiol* 119 327 (June) 1937

4 The Effect of Ephedrine on Absorption from the Small Intestine Edward J Van Liere David Northrup and Clark K Sleeth *J Pharmacol & Exper Therap* 60 434 (Aug) 1937

5 Determination of Iodine in Ten Cc of Blood by Burning in Platinum Combustion Tube with Screw Feed and Distillation J F McClendon A C Bratton and R V White *Proc Soc Biol Chem J Biol Chem* 119 189 (June) 1937

6 Excretory Action of Morphine on the Long Surviving Decorticated Cat W E Hamburger *Proc Soc Exper Biol & Med* 36 36 (Feb) 1937

7 Clinical Excretion of Bismuth II The Urinary Excretion of Bismuth After Clinical Intramuscular Injections of Sodium Iodobismuth (Sodium Bismuth Iodide Iodobismutol) and Sodium Bismuth Thiohydrylate (Thioisomol) Torald Sollmann H N Cole and Katharine Henderson *Am J Syph Gonorr & Ven Dis* 21 480 (Sept) 1937

8 Clinical Excretion of Bismuth III Fecal and Total Excretion Torald Sollmann H N Cole and Katharine Henderson *Am J Syph Gonorr & Ven Dis* 21 492 (Sept) 1937

9 Clinical Excretion of Bismuth IV The Late Excretion of Bismuth After Cessation of Treatment Torald Sollmann, H N Cole and Katharine Henderson *Am J Syph Gonorr & Ven Dis* 21 506 (Sept) 1937

10 Tolerance Tests with Ferric Chloride on Advanced Tuberculous Patients Vally Menkin *Am Rev Tuberc* 35 134 (Jan) 1937

11 Studies on Inflammation XIII Carbohydrate Metabolism Leuc Acidosis, and the Cytological Picture in Inflammation Vally Menkin and Charlotte R Warner *Am J Path* 12 25 (Jan) 1937

12 Mechanism of Inflammation, Vally Menkin *Arch Path* 21 65 (July) 1937

13 Isolation and Properties of the Factor Responsible for Increased Capillary Permeability in Inflammation Vally Menkin *Proc Soc Exper Biol & Med* 36 164 (March) 1937

14 Studies of Blood Formation in the Fetus and New Born IV M M Wintrobe and (by invitation) Dean A Clarke William Trager and Louis Danziger *J Clin Investigation* 16 667 (July) 1937

15 The Effect of Immune Blood on the Opsonocytaphagic Power of the Blood in Pertussis William I Bradford Robert Mikell and Betty Slavin *J Clin Investigation* 16 829 (Sept) 1937

16 Absorption of Insulin from Thirty Vella Loops of the Intestine in Normal and Depauperized Dogs John R Murlin Ruth Latta Thompson and H B Pierce *Am J Physiol* 120 733 (Dec) 1937

17 The Effect of Hexylresorcinol on the Absorption of Insulin from the Gastro-Intestinal Tract of Dogs R G Danks W R Murlin and J R Murlin *Am J Physiol* 120 744 (Dec) 1937

18 The Effect of Estrin on the Basal Metabolism Rate and the Nervous Symptoms of Ovariectomized Women, Mary E Collett Joseph T Edwards and Grace E Wertenberger *Am J Obst & Gynec* 31 639 (Oct) 1937

19 Studies in the Metabolism of Alkalinized Dextrose John C F Jr Ruth Vuser C Jelleff Carr Frances Beck and T Nelson Carey *Arch internat de pharmacodyn et de therap* 55 9 (Jan 31) 1937

20 The Effect of Decolin Sodium on the Intact Intestine of the Anesthetized Dog Charles M Gruber *J Pharmacol & Exper Ther* 50 301 (March) 1937

21 The Effect of Histamine on Salivary Secretion O S Collins and H H McClanahan *J Pharmacol & Exper Therap* 61 218 (Oct) 1937

22 Studies of the Principle of Liver Effective in Pertussis and IV The Therapeutic Activity of Its Multiple Factors Edward J Ferson and Y Subbarow *J Clin Investigation* 16 573 (July) 1937

- 23 Blood Substitutes William A Amberson *Biol Rev* 12 48 1937
- 24 Further Studies on Intoxication with Vitamin D I E Steck  
H Deutch C I Reed and H C Struck *Ann Int Med* 10 951  
(Jan) 1937
- 25 Grenz Rays in Dermatology Cleveland White *Arch Phys Therapy*  
18 139 (March) 1937
- 26 The Influence of Cold on the Calorigenic Action of Diminophenol  
V E Hall J M Crismon and P E Chamberlin *J Pharmacol & Exper Therap* 59 195 (Feb) 1937
- 27 Studies on the Sex Difference in Rats in Tolerance to Certain Barbiturates and to Nicotine Harald G O Holck Munir A Kanan Lucille M Mills and Edwin L Smith *J Pharmacol & Exper Therap* 60 323 (July) 1937
- 28 Studies on the Sex Difference in Rats in Tolerance to Certain Barbiturates and to Nicotine Harald G O Holck Munir A Kanan Lucille M Mills and Edwin L Smith *Skandina Arch f Physiol* 77 1937
- 29 Chronic Acetanilid Poisoning in the Albino Rat An Experimental Study of Addiction and Tolerance E J Stanton and W R Agricola *J Pharmacol & Exper Therap* 59 437 (April) 1937
- 30 Insulin Treatment of Morphine Abstinence Symptoms An Experimental Evaluation E J Stanton *J Pharmacol & Exper Therap* 60 387 (Aug) 1937
- 31 The Chemotropic Attraction of Leukocytes by Tractions of Streptococcus Haemolyticus H M Dixon M McCutcheon and E J Czarnetzky *Am J Path* 13 645 (July) 1937
- 32 Chemotropism in Leukocytes The Source of the Attractive Substance M McCutcheon and H M Dixon *Arch Path* 23 743 (May) 1937
- 33 The Serum Carotene in Diabetic Patients George H Stueck Gerald Flaum and Elaine P Ralli *J A M A* 109 343 (July 31) 1937
- 34 Experimental Radium Poisoning II Changes in the Teeth of Rabbits Produced by Oral Administration of Radium Sulfate Maurice Rosenthal *Am J M Sc* 193 495 (April) 1937
- 35 A Cinematic Study of Bronchiolar Reactions Torald Sollmann and A J Gilbert *Proc Soc Exper Biol & Med* 36 16 (Feb) 1937
- 36 Microscopic Observations of Bronchiolar Reactions Torald Sollmann and A J Gilbert *J Pharmacol & Exper Therap* 61 272 (Nov) 1937

During 1937 the following grants were made

- Grant 306 Edwards A Park professor of pediatrics Johns Hopkins University School of Medicine \$75 to investigate rickets in the rat and the effect of parathyroid extract on the circulation of the bone
- Grant 307 Ephraim Shorr assistant professor of Medicine Cornell University Medical College \$200 to investigate methods of determining adequate dosage of corpus luteum hormone for the human being
- Grant 308 Claus W Jungeblut professor of bacteriology Columbia University College of Physicians and Surgeons \$250 to investigate the relation of vitamin C to diphtheria
- Grant 309 Katharine Henderson Department of Pharmacology Western Reserve University School of Medicine \$250 to investigate bismuth absorption on oral administration
- Grant 310 Yaly Menkin Department of Pathology Harvard Medical School \$150 to investigate the relation of iron salts in the treatment of tuberculosis
- Grant 311 Clarence P Berg assistant professor of biochemistry State University of Iowa \$250 to investigate amino acids
- Grant 312 W F Hamilton professor of physiology and pharmacology University of Georgia School of Medicine \$125 to investigate the effect of anesthesia on vasomotor responses
- Grant 313 Treat B Johnson Sterling professor of chemistry Yale University \$250 to investigate pyrimidines
- Grant 314 F C Koch chairman Department of Physiological Chemistry and Pharmacology University of Chicago \$250 to investigate provitamin D
- Grant 315 Erwin E Nelson professor of pharmacology Tulane University School of Medicine \$125 to investigate some actions of the pituitary
- Grant 316 Edward Van Liere professor of physiology West Virginia University School of Medicine \$100 to investigate the action of various drugs on gastric motility
- Grant 317 Arnold De M Welch Department of Pharmacology Washington University School of Medicine \$250 to investigate the action of choline etc on the metabolism of fat
- Grant 318 Abraham White Department of Physiological Chemistry Yale University School of Medicine \$200 to investigate the lactogenic substance isolated in the pituitary
- Grant 319 J P Quigley Department of Physiology Western Reserve University School of Medicine \$250 to investigate gastrointestinal motility
- Grant 320 M L Tainter professor of pharmacology Stanford University School of Medicine \$250 to investigate sympathomimetic amines
- Grant 321 Helen Tucker Department of Chemistry Skidmore College \$150 to investigate the experimental production of fatty livers by dietary means

Grant 322 George H Paff Department of Anatomy Long Island College of Medicine \$70 to investigate an assay method for digitalis

Grant 323 Torald Sollmann dean and professor of pharmacology and materia medica Western Reserve University School of Medicine and Joseph Seifter Western Reserve University School of Medicine \$250 to investigate bismuth compounds

Grant 324 Howard B Lewis professor of biological chemistry University of Michigan Medical School \$200 to investigate selenium salts

Grant 325 Walter E Hambourger assistant professor of pharmacology Western Reserve University School of Medicine \$150 to investigate the mechanism of morphine action with special reference to the excitement in cats

Grant 326 R Beutner professor of pharmacology Hahnemann Medical College \$80 to investigate the toxicity of procaine

Grant 327 Eben J Carey dean and professor of anatomy Marquette University School of Medicine \$250 to investigate the pharmacologic agents that influence the histologic signs of nervous action

Grant 328 Donald E Gregg assistant professor of physiology Western Reserve University School of Medicine \$250 to investigate the cardiac blood supply in dogs

Grant 329 Roberta Hafkeshring associate professor of physiology Woman's Medical College of Pennsylvania \$250 to investigate the effects of sodium barbital sodium amylal and pentobarbital sodium on blood pressure respiration and kidney function

Grant 330 John B Lagen research associate in medicine University of California Medical School \$150 to investigate the potassium and sodium ions in the blood of patients suffering from asthma and other allergic conditions and changes following treatment

Grant 331 John B Lagen research associate in medicine University of California Medical School \$100 to investigate the total base content of the blood in the anxiety states

Grant 332 J P Simonds Department of Pathology Northwestern University Medical School \$200 to investigate the selective activity of toxic substances on the kidneys

Grant 333 Owen S Gibbs chief of Pharmacological Division University of Tennessee College of Medicine \$180 to investigate the toxicity of morphine and scopolamine on rats

Grant 334 J F McCleendon professor of physiologic chemistry University of Minnesota Medical School \$200 to investigate iodine determination in blood

Grant 335 E M K Geiling professor of pharmacology University of Chicago Paul R Cannon professor of pathology University of Chicago and C M Warberg Department of Pathology University of Chicago \$250 to investigate the fate and mechanism of action of diethylene glycol

Grant 336 E M K Geiling professor of pharmacology University of Chicago Paul R Cannon professor of pathology University of Chicago J M Coon and A Rodaniche Department of Pharmacology University of Chicago \$250 to investigate the fate of sulfanilamide after (1) injury to the liver and kidneys by diethylene glycol (2) the injection of the elixir of sulfanilamide (Massengill)

The following grants were issued before Jan 1, 1937 In some cases the grant has expired and an unexpended balance remains or the work is not yet completed or not yet published

Grant 102 C W Greene professor of physiology and pharmacology University of Missouri \$250 to investigate the distribution of nitrous oxide and oxygen in the blood during anesthesia

Grant 119 Nicholas Kopeloff research associate in bacteriology New York State Psychiatric Institute and Hospital \$100 to investigate bacillus acidophilus milk for the prevention and treatment of summer diarrhea in babies

Grant 152 C W Greene professor of physiology and pharmacology University of Missouri \$300 to investigate the reaction of the coronary system to drugs

Grant 164 E L Jackson associate professor of pharmacology Emory University School of Medicine \$200 to investigate the antagonism between soluble barbitol and insulin

Grant 200 Walter Bauer Massachusetts General Hospital Robert W Lovett Memorial Foundation of the Harvard Medical School \$250 to investigate the anatomy and physiology of normal joints with special reference to rheumatoid arthritis

Grant 201 George R Congill associate professor of physiologic chemistry Sterling Hall of Medicine Yale University \$250 to investigate vitamin B in relation to morphine addiction

Grant 214 E A Park professor of pediatric and J A Pierce Johns Hopkins University School of Medicine \$200 to investigate the reaction of cartilage

Grant 221 John G Reinhold Department of Public Health Philadelphia General Hospital \$250 to investigate the action of aminoacetic acid (glycine) in progressive muscular dystrophy

Grant 222 Eugene L Still assistant professor of physiology University of Chicago \$250 to investigate the changes in the metabolism of the pancreas

Grant 22 Clinton H Thorne professor of pharmacology and Lawrence E Detrick Department of Pharmacology University of Southern California School of Medicine \$200 to investigate withdrawal phenomena in morphine addicted animals

Grant 228 Henry G Barbour associate professor of pharmacology and Toxicology Yale University School of Medicine \$250 to investigate metabolism and water exchange in morphine habituation

Grant 232 George R Cowgill associate professor of physiologic chemistry Yale University School of Medicine, \$250 to investigate the heart in vitamin B deficiency

Grant 236 C W Greene professor of physiology and pharmacology University of Missouri School of Medicine \$100 to investigate the pharmacology of the so called specific coronary dilator drugs

Grant 238 Roy R Kracke professor of pathology Emory University School of Medicine \$250 to investigate the effect of the oxidation products of aminopyrine and related drugs on the leukocyte counts of rabbits

Grant 248 Fred C Koch chairman of the Department of Physiological Chemistry and Pharmacology University of Chicago \$250 to investigate the testis hormone

Grant 249 J Percy Baumberger associate professor of physiology, Department of Physiology Stanford University \$200 to investigate the occurrence and oxidation reduction potential of pigments in tumor cells

Grant 251 Bernard Fantus professor of therapeutics University of Illinois College of Medicine \$100 to investigate the titration of the anti toxic value of serum of patients who have received tetanus antitoxin

Grant 257 O W Barlow formerly assistant professor of pharmacology Western Reserve University School of Medicine \$150 to investigate antileptics vs barbiturates

Grant 259 O W Barlow formerly assistant professor of pharmacology Western Reserve University School of Medicine \$100 to investigate the effects of parasympathetic drugs on intestine

Grant 261 Robert P Wilton professor of pharmacology University of Mississippi School of Medicine \$100 to investigate the absorption of drugs through oral mucosa

Grant 263 H A Shoemaker associate professor of biochemistry and pharmacology C E Clymer professor of clinical surgery and Henry H Turner University of Oklahoma School of Medicine \$150 to investigate the blood cholesterol and iodine values in thyroid disease and their alteration by treatment

Grant 264 Detlev W Bronk Johnson professor of biophysics University of Pennsylvania School of Medicine \$200 to investigate the action of various drugs on the autonomic centers

Grant 268 Walter E Hambourger assistant professor of pharmacology Western Reserve University School of Medicine \$250 to investigate the mechanism of morphine action with special reference to the excitement in cats

Grant 269 Francis G Blake Sterling professor of medicine and Marion E Howard Sterling Professor of medicine Yale University School of Medicine \$50 to investigate the use of artificial pneumothorax in the treatment of lobar pneumonia

Grant 270 Elaine P Ralli assistant professor of medicine New York University College of Medicine \$250 to investigate the effect of carotene on the blood vitamin A

Grant 273 Marston T Bogert professor of chemistry Columbia University \$100 to investigate the chemistry and pharmacology of the quinazoline group

Grant 276 Eugene Stanton Department of Pharmacology Western Reserve University School of Medicine \$150 to investigate the addiction tolerance and abstinence to various narcotics in animals especially rats

Grant 278 William H Lewis Jr assistant clinical professor of medicine, and Arthur C DeGraff professor of therapeutics New York University College of Medicine \$150, to investigate the function of the heart in relation to age

Grant 279 Norman A David assistant professor of pharmacology University of Cincinnati College of Medicine \$65 to investigate the effects of carbarsone and other pentavalent arsenicals on the optic nerve

Grant 280 John P Peters professor of medicine Yale University School of Medicine \$200 to investigate by means of intravenous pyelography the state of ureters and kidneys in a large series of patients after delivery and subsidence of acute signs of toxemia

Grant 281 O W Barlow formerly assistant professor of pharmacology Western Reserve University School of Medicine \$125 to investigate circulatory effects of metrazol under conditions of anesthesia with ether as well as under the influence of hypnotics

Grant 282 Arthur W Grace Department of Medicine Cornell University Medical College \$250 to investigate the effect of x ray and Frei vaccine therapy in artificially inoculated venereal lymphogranuloma in guinea pigs

Grant 283 Louis N Katz director of cardiovascular research Nelson Morris Memorial Institute for Medical Research Michael Reese Hospital Chicago \$200 to investigate the action of drugs on coronary circulation

Grant 285 Morton McCutcheon associate professor of pathology University of Pennsylvania School of Medicine \$150 to investigate the chemotropism of leukocytes

Grant 287 M L Tainter professor of pharmacology Stanford University School of Medicine \$250 to investigate sympathomimetic amines

Grant 288 Louis Goodman Department of Pharmacology and Toxicology Yale University School of Medicine \$150 to investigate the effects of histidine injections on gastric physiology

Grant 289 Carl C Pfeiffer Department of Pharmacology University of Chicago \$225 to investigate the possible amino acids present in the *Trypanosoma lewisi* antibody

Grant 295 Torald Sollmann dean and professor of pharmacology materia medica Western Reserve University School of Medicine \$250 to investigate the microscopic reactions of the bronchioles to drugs and anaphylaxis

Grant 297 Melvin Dresbach Harvard University Medical School \$250 to investigate the emetic effect of some of the digitalis bodies

Grant 298 Kenneth W Thompson Department of Physiology University School of Medicine \$200 to investigate the effects of thyroid stimulating hormone

Grant 302 Mary E Collett Flora Stone Mather College Western Reserve University \$200, to investigate the effect of the ovarian hormone on the hot flashes and the basal metabolism of ovariectomized women.

Grant 303 Arnold De M Welch Department of Pharmacology Washington University School of Medicine \$200 to investigate the action of choline and betaine in the metabolism of fat

Grant 304 Howard B Lewis professor of biological chemistry University of Michigan Medical School \$175 to investigate selenium salts

Grant 305 Beverly Douglas assistant dean and associate professor of surgery Vanderbilt University School of Medicine \$250 to investigate the pneumatic (transparent rubber jacket) system of treating extensive wounds

### TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the Year Ending December 31, 1937

Reserve Invested as at December 31 1936	\$2 253 521 31
Bonds Purchased (Cost)	98 218 75
	<hr/>
Less Bonds Called	\$2 351 740 06
	11 367 06
	<hr/>
Invested Funds December 31 1937	\$7,340 373 60
Balance for Investment December 31 1936	\$ 6 870 75
Interest on Investments	84,223 46
	<hr/>
	91 094 21
Less	
Transfer to General Fund	52,032 65
	<hr/>
Uninvested Funds December 31 1937	39 061 56
	<hr/>
Invested and Uninvested Reserve as at December 31 1937	\$7 379 434 56

### DAVIS MEMORIAL FUND

Balance in Fund December 31 1936	\$7,013 18
1937 Interest on Bank Balance	105 57
	<hr/>
Total Fund as at December 31 1937 on Deposit	\$ 7,118 75

HERMAN L KRETSCHMER, Treasurer

### AUDITOR'S REPORT

February 2, 1938.

To the Board of Trustees,

American Medical Association, Chicago, Illinois

Dear Sirs

In accordance with your instructions, we have made an examination of the Balance Sheet of the American Medical Association, Chicago, Illinois, as at December 31, 1937, and of the Income Account for the year 1937. In connection therewith, we examined or tested accounting records of the Association and other supporting evidence, and obtained information and explanations from officers and employees of the Association, we also made a general review of the accounting methods and of the operating and income accounts for the year, but we did not make a detailed audit of the transactions. We now submit our report on the examination, together with related statements as enunciated in the index appended hereto. In our opinion, based on such examination, the accompanying Balance Sheet and related Income Account fairly present the position of the Association as at December 31, 1937, and the results of its operations for the year, subject to the following qualifications and observations:

- (1) The inventories of materials, supplies and work in progress, amounting to \$92,151 50, are stated in accordance with certificates sworn to by responsible officials of the Association and have not been confirmed by us in any way.
- (2) In accordance with the established practice of the Association, the accounts as stated do not include (a) unrecorded assets in respect of accrued interest on bond investments and membership dues unpaid, and (b) provision for accrued payroll, accrued property taxes for the year 1937, and unpaid bills.



(3) Subscriptions paid in advance are stated at an estimated amount which is based on cash received in December 1937 on account of 1938 subscriptions. This procedure conforms to the method used in prior years.

(4) Advance payments on publications include an estimated amount (\$127,118 58) for prepaid subscriptions to Hygeia, and the amount (\$25,580 50) received in advance for January 1938 advertising, postage and directory sales and service.

(5) The buildings of the Association are carried at reproduction values as determined by an appraisal by Holabird and Root as at December 31, 1936, less depreciation accrued to the date of the Balance Sheet. The portion of the depreciation provision for the year applicable to the increase in book value, which was recorded at December 31, 1936, as determined by the appraisal, has been charged against the complementary credit included in the Net Worth of the Association in that connection.

We have received a letter from Messrs Loesch, Scofield, Loesch and Burke, attorneys for the Association stating that there were two lawsuits pending against the Association at December 31, 1937, both alleging libel, one filed by Dr Jean Paul Fernel for \$1 000 000, and the other filed by Harold F Wadlow for \$150 000. The attorneys state that in their opinion both suits will be defeated. We have also received a certificate from an official of the Association stating that at December 31, 1937, there were no contingent liabilities except the lawsuits here referred to.

Fidelity insurance is carried against the undermentioned officers and employees of the Association in the amounts stated:

Dr Olin West Secretary and General Manager	\$10 000 00
Dr Herman L Kretschmer Treasurer	10 000 00
E A Hoffman Cashier	10 000 00
J E Hartigan Assistant Cashier	2 000 00
Sundry Employees (eleven \$1 000 00 each)	11 000 00
Total Fidelity Insurance	<u>\$43 000 00</u>

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for the proper conduct of the examination.

Yours truly, PEAT, MARWICK, MITCHELL & Co

## INDEX TO STATEMENTS

	Exhibit
Balance Sheet as at December 31 1937	A
Income Account for the year ended December 31 1937	B
Journal Operating Expenses for the year ended December 31, 1937	Schedule '1'
Association and Miscellaneous Expenses for the year ended December 31 1937	'2'

## EXHIBIT A

### BALANCE SHEET AS AT DECEMBER 31 1937

<b>ASSETS</b>	
Property and Equipment	
Real Estate—Land at less than cost (see note) and Buildings at Reproduction Cost New (as appraised by Holabird and Root at December 31 1936) less Depreciation	\$1 167 503 26
Equipment—at Cost less Depreciation	
Machinery	\$ 153 444 60
Type and Metal	15 222 14
Furniture and Equipment	90 443 85
Chemical Laboratory	8 584 58
Total Property and Equipment	<u>1 415 198 43</u>
Investments—at Cost	
U S Government Securities	1 453 316 81
Railroad Municipal and Utility Bonds	887 056 19
Cash held by Treasurer for Investment	39 061 56
Cash in Bank and on Hand	159 921 56
Accounts Receivable	
Advertising	58 516 19
Co-operative Medical Advertising Bureau	13 822 61
Reprints	3 843 01
Miscellaneous	5 397 77
Notes Receivable	500 00
Inventories of Materials Supplies and Work in Progress	92 151 50
Expenditures on Publications in Progress	92 842 11
Prepaid Expenses—Insurance etc	9 807 89
Total	<u>\$4 231 435 63</u>

Note—Book value of Land was reduced \$40 000 00 as of December 31 1933 by official action of Board of Trustees. This action was reported to House of Delegates.

## LIABILITIES

Accounts Payable	
Co-operative Medical Advertising Bureau	\$ 13 447 86
Miscellaneous	258 15
	<u>13 706 01</u>
Subscriptions Paid in Advance	
Advance Payments on Publications	158 607 47
	<u>152 699 08</u>
Net Worth	
Association Reserve Fund	\$ 350 000 00
Building Reserve Fund	300 000 00
Capital Account	
Amount thereof as at December 31 1936	\$3 062 810 60
Net Income for the year ended December 31 1937	122 242 92
	<u>3 185 053 52</u>
Deduct—Amount transferred to Building Reserve Fund during year	50 000 00
	<u>3 135 053 52</u>
Increase in book value of Buildings—per appraisal	124 481 59
Deduct—Depreciation applicable thereto for year ended December 31 1937	3 112 04
	<u>121 369 55</u>
Net Worth December 31 1937	<u>3 906 423 07</u>
Total	<u>\$4 231 435 63</u>

## EXHIBIT B

### INCOME ACCOUNT

#### FOR THE YEAR ENDED DECEMBER 31 1937

Journal	
Gross Earnings	
Fellowship Dues and Subscriptions	\$ 670 170 31
Advertising	841 042 57
Jobbing	108 546 08
Reprints	3 587 29
Books	14 700 22
Insomnia	6 514 71
Miscellaneous Sales	9 642 56
	<u>1 654 203 74</u>
Gross Earnings from Journal	1 654 203 74
Operating Expenses—Schedule 1	982 830 10
	<u>671 373 64</u>
Net Earnings from Journal	
	<u>982 830 10</u>
Miscellaneous Income	
Rents	\$ 1 200 00
Sundry Publications	8 889 16
	<u>10 089 16</u>
Association Income	
Income from Investments	83 563 74
Miscellaneous Income	7 453 20
	<u>91 016 94</u>
Gross Income	
	<u>772 479 74</u>
Association Expenses—Schedule 2	431 635 63
Miscellaneous Expenses—Schedule 2	218 601 19
	<u>650 236 82</u>
Net Income	<u>\$ 122 242 92</u>

## SCHEDULE 1

### JOURNAL OPERATING EXPENSES

#### FOR THE YEAR ENDED DECEMBER 31 1937

Wages and Salaries	\$460 182 01
Editorials News and Reporting	10 850 30
Paper—Journal Stock	239 081 25
Paper—Miscellaneous	2 582 60
Electrotype and Engravings	16 165 38
Binding	417 06
Ink	9 385 05
Postage—First Class	35 530 13
Postage—Second Class	61 744 76
Journal Commissions	15 886 25
Collection Commissions	773 27
Discounts	27 840 20
Express and Cartage	5 607 74
Exchange	2 924 55
Office Supplies	4 359 86
Telephone and Telegraph	4 612 93
Office Jobbing	16 352 79
Power and Light	11 599 00
Factory Supplies	14 455 94
Repairs and Renewals—Machinery	7 413 33
Miscellaneous Operating Expenses	21 671 18
Bad Debt Losses and Loss from Sale of Equipment (net)	809 75
Total Journal Operating Expenses before Provision for Depreciation	<u>970 245 33</u>
Depreciation on Equipment (computed on diminishing balances)	
Machinery	\$7 023 40
Furniture and Equipment	4 334 16
Factory Equipment	427 05
Type	339 93
Metal	461 23
	<u>12 584 77</u>
Total Journal Operating Expenses	<u>\$982 830 10</u>

## SCHEDULE 2'

## ASSOCIATION AND MISCELLANEOUS EXPENSES

FOR THE YEAR ENDED DECEMBER 31 1937

## Association Expenses

Association	\$115 457 69
Health and Public Instruction	36 266 71
Pharmacy and Chemistry	47 555 08
Chemical Laboratory	27 784 22
Medical Education and Hospitals	73 625 17
Therapeutic Research	4,839 44
Legal Medicine and Legislation	37 456 25
Bureau of Investigation	16 568 30
Bureau of Medical Economics	28 929 82
Council on Foods	19 350 30
Physical Therapy	16 020 82
Bureau of Association Exhibits	6 962 95
Net Loss from sale of securities	567 06
Laboratory Depreciation (5% on diminishing balances)	451 82
Total Association Expenses	\$431 635 63

## Miscellaneous Expenses

Insurance and Taxes	\$ 21 785 62
Legal and Investigation	23 288 60
Building Expenses	37 806 64
Building Depreciation (2.5% on diminishing balances—cost basis)	19 419 48
Fuel	8 759 84
Sundry Publications	107 541 01
Total Miscellaneous Expenses	\$218 601 19

## REPORT OF THE JUDICIAL COUNCIL

To the Members of the House of Delegates of the American Medical Association

During the past year but two disciplinary actions of county societies have been brought before the Judicial Council on appeal. These are fewer cases than have been appealed in former years and seem to indicate that more particular attention to procedure has been paid than previously. Reversal of state society actions was not required in either case. The correspondence has steadily increased in volume and in the number of new situations which apparently are not plainly covered in the Principles of Medical Ethics. More questions are arising involving the relations of doctors with hospitals, hospital service plans, insurance companies and governmental agencies.

## DISCIPLINE BY RESOLUTIONS

The attempt is being made in some societies to regulate some undesirable situations by amendment of the by-laws by the adoption of resolutions or by the establishment of rules of conduct directed to the specific undesirable practice existing at the moment. In such instances small regard is paid to the established constitution and by-laws and short cuts to disciplinary action are sought, usually by making loss of membership automatic on violation of the newly adopted by-law, resolution or rule of conduct. In previous reports the Judicial Council has called attention to the undesirability of basing disciplinary action on such specific rules or resolutions and especially when the general broad principles of conduct set out in the Principles of Medical Ethics are adequate to cover the situation.

Because loss of membership in a component county society causes loss of membership in the state society and in the American Medical Association as well it would seem advisable to have the causes of loss of membership uniform and the same in all county societies at least in those of each constituent state association. If there were such uniformity in all probability the justness of loss of membership and Fellowship in the American Medical Association because of loss of membership in a component society never would arise. Such a question never yet has arisen but may arise if disciplinary measures are taken on the basis simply of the violation of a resolution or a rule of conduct. For example it is not too great a stretch of the imagination to suppose that a component society, having internal disturbances might at a highly emotional time adopt a Rule of Conduct declaring that practicing in a certain hospital automatically removes a physician from membership in the society. Such a rule obviously would be adopted for

some definite purpose. The purpose might be to embarrass, punish a certain physician or a group of physicians or to bring pressure on the hospital. The physician or physicians or the hospital might be entirely ethical and might not violate any of the regularly adopted by-laws. A serious objection to disciplining under Rules of Conduct is that these regulations generally are adopted in a much less formal manner than by-laws. Ordinarily they are adopted on the spur of the moment by a majority of those present and voting being required. While such a hypothetical case as presented has not come before the Judicial Council as yet, the extension of the practice of using these regulatory procedures as a basis for disciplining will almost inevitably at some time in the future require the Judicial Council to decide whether a member of the American Medical Association can be deprived of Fellowship and the privilege of membership for nothing more heinous than a local unfortunate situation.

## STUDY OF CONSTITUTIONS AND BY-LAWS

In view of the rapidly changing conditions of medical practice, as shown by many letters of inquiry coming to the Council, a careful study of the constitutions and by-laws of both constituent state medical associations and component county medical societies might be advisable to determine whether these instruments have kept pace with the changes involving medical practice which have occurred already or are in the process of occurring. Strictly speaking, the activities of a society or any organization are defined by and restricted to those purposes and the necessary activities to accomplish the purposes, stated in the constitution or the articles of incorporation establishing the organization. The constitutions of most medical societies name as the purpose of the organization the promotion of the science and art of medicine, the protection of the public health, the education of the profession and the uniting with similar organizations to form the American Medical Association. In no constitution, so far as the Judicial Council is aware, is there provision to enter the field of the practice of medicine as an organization either by the actual furnishing of care by the organization or by the control of the methods or the procedure of its members in furnishing care. The House of Delegates has recommended that experiments be made by component societies in methods of caring for low income groups, and many such experiments have been made and are now in operation but apparently without authority in the constitutions and apparently without control by the respective societies except through the Principles of Medical Ethics which might be applicable in individual cases. Local county societies and state associations should have direction of and control over such activities but such control and direction cannot be maintained against opposition unless such activities are included among the purposes for which the societies are organized and operating. The Judicial Council recommends that all state associations carefully review their present constitutions and by-laws with the object in view of such revision as may be necessary to meet present day needs of medical practice and medical organizations.

An interesting departure from the customary method of providing for the disciplining of members by county societies has recently come to the attention of the Council. A state association in revising its constitution and by-laws laid down the rules of procedure for disciplining members in excellent detail and established these rules as those to be followed by all component societies under its jurisdiction. By so doing the component societies are obligated to act under and to proceed according to the by-laws of the state association and have neither the need nor the authority to adopt provisions of their own. The by-laws of the component society thus require only the statement that procedures for the disciplining of members are as stated in the by-laws of the state association. It would appear that this plan of having identical rules of procedure in all component societies of a state established by the state association would obviate some of the appeals which come before the Judicial Council on appeal alleging procedural error.

## RENTAL OF RADIUM

A widespread practice of renting radium for the treatment of patients by physicians not owning or being experienced in the use of radium has caused considerable discussion during the past year. Ordinarily instructions in the technic of the use of the radium are sent by the person furnishing it. Sometimes the radium is furnished by a commercial concern, sometimes by a physician owning it. The advisability of the use of such a powerful agency by those not trained in its use and the ethics involved of prescribing and directing its use by a person who has not examined or seen the person on whom it is to be used has come before the Council. As a result of a rather extensive correspondence both from those favoring its use as described and those opposed, the Judicial Council is of the opinion that the prescribing and directing of its use in the case of a patient whom the prescriber has not examined or seen is an unethical medical procedure. The Council recognizes that advice and help in difficult cases is often furnished by those in a position to be of possible or probable assistance but it believes that the great dangers accompanying the use of radium removes that particular remedy from the field of advice without personal contact with the patient.

## PHYSICIANS AND CULTISTS

Many inquiries concerning the relations of the various cults to the regular profession have been received. The inquiries pertain particularly to the osteopath and the optometrist. Some of our members are giving lectures in osteopathic and optometric schools and addresses before their societies. Some members are associated by a common waiting room in offices with them. Some members are by mutual agreement professional associates principally in the field of surgery. There are some instances of partnership in practice. All of these voluntarily associated activities are unethical. Such relations certainly do not "uphold the dignity and honor of (our) vocation" or "exalt its standards." In case of emergency no doctor should refuse a sufferer knowledge or skill which he possesses to the sufferer's harm but this is quite a different matter from that of a consultant or practitioner who by consulting or practicing with him assists a cultist to establish himself as competent and on the same basis of medical knowledge as a doctor of medicine. By the very nature of the education and training of each a consultation with a cultist is a futile gesture if the cultist is assumed to have the same high grade of knowledge, training and experience as is possessed by the doctor of medicine. Such consultation lowers the honor and dignity of the profession in the same degree to which it elevates the honor and dignity of the irregular in training and practice. Practicing as a partner or otherwise has the same effect and objection. Teaching in cultist schools and addressing cultist societies is even more reprehensible for such activities give public approval by the medical profession to a system of healing known to the profession to be substandard, incorrect and harmful to the people because of its deficiencies. There hardly can be a voluntary relationship between a doctor of medicine and a cultist which is ethical in character.

## FINALITY OF STATE ACTION

The constitutions and by-laws of some constituent associations provide that the action of the Council or other authoritative body of the state association in matters of discipline over its members is final. The Judicial Council calls attention to the incorrectness of this statement, which might and probably has been prejudicial to the rights of some members under disciplinary action. The only interpretation of the statement that can be made is that the action of the state authority is final so far as the state association is concerned. Notwithstanding this statement in the constitutions and by-laws the accused has the right of appeal to the Judicial Council of the American Medical Association by virtue of chapter IX, section 1 of the By-Laws of the American Medical Association reading in part as follows:

The Judicial power of the Association shall be vested in the Judicial Council whose decision shall be final. This power shall extend to and in all cases which are (c) between a member or members and the component society to which said member or members

belong the Judicial Council shall have appellate jurisdiction in questions of law and procedure but not of fact and also. The Judicial Council shall have jurisdiction on all questions of ethics and in the interpretation of the laws of the organization.

It is the opinion of the Council that wherever a statement of finality of the action of the state authority is made the wording should be amended by the addition of the words "except as provided in the By-Laws of the American Medical Association," or some similar phrase.

Respectfully submitted

GEORGE EDWARD FOLLANSBEE, Chairman  
JOHN H. O'SHEA  
EDWARD R. CUNNIFFE  
WALTER F. DONALDSON  
JOHN W. BURNS

REPORT OF THE COUNCIL ON MEDICAL  
EDUCATION AND HOSPITALS

*To the Members of the House of Delegates of the American Medical Association*

1 Reports from a large number of medical schools indicate that, as a result of the Council's survey, substantial improvements are being made in faculty personnel, student selection, clinical facilities, buildings and equipment. Nineteen schools have reported budget increases which average \$43,300.

2 The Council is now preparing a final report of the survey which will present a fairly comprehensive review of medical education based on the extensive data collected during the past three or four years. Such a commentary will inevitably become an invaluable source of information to all who may be interested in medical teaching and will constitute a permanent record of the Association's unparalleled contributions in the field of professional education.

3 In May 1936 the House of Delegates adopted a report of the Reference Committee on Medical Education as follows:

Your committee commends the plans for the study of graduate training of physicians in the various phases and regards graduate training as one of the most pressing problems facing the medical profession at the present time.

During the past year the Council has commenced a study of graduate medical education, a field which is almost boundless and enormously complex. For convenience it has been subdivided into three major categories: Extension Courses, Apprenticeships, and Opportunities for Graduate Study. In the first category are found the educational programs of county and state societies together with many other similar activities. The second category consists chiefly of internships and residencies, the modern equivalent of the old fashioned apprenticeships. Under the caption 'Opportunities for Graduate Study' will be listed those offerings, for the most part under university auspices, which, though not necessarily leading to a degree, conform to the generally accepted standards of graduate work.

4 Since the last meeting of the Association, the Council has begun to inventory the field of extension courses. When the House of Delegates meets, eighteen states will have been visited for the purpose of gathering data. Each state has peculiar problems which must be individually studied and solved. State societies, departments of health, medical schools and foundations may all be more or less concerned in planning and administering such courses. The federal government, through its social security funds, is now actively entering this field. The officers of the respective state societies must be alert and energetic if the medical profession is to retain its control over this most important function.

5 During the Atlantic City session the Advisory Board for Medical Specialties undertook to create a 'Commission on Graduate Medical Education'. This commission it was tated would not undertake to inspect or appraise institutions engaged in graduate teaching nor would it invade the sphere of action of the Council. Dr. Robert Buerki of Madison, Wis., will be director of the commission's studies.

6 Patients in 1937 entered hospitals at the rate of one every 34 seconds. The rate of growth in hospitals is equivalent to one hospital of seventy-six beds for each day. Sundays and holidays included. New hospitals in addition to the 6,128 already

registered include 100 hospitals opened but whose registration is pending, seventy under construction, and 179 planned and being developed. The rate of occupancy in general hospitals is 70 per cent of capacity. There are 6,128 hospitals, 1,124,548 beds, 55,566 bassinets, 932,912 births, 944,436 average census, and 9,221,517 patients admitted, of which 2,509,925 were in governmental hospitals and 6,711,592 were in nongovernmental hospitals. Thus nearly three fourths of the patients are cared for in private hospitals having only about one fourth of the bed capacity of all hospitals in the country.

7 In accordance with the resolution of the House of Delegates adopted at the 1934 session, the Council is proceeding with its analysis of the attending staffs of approved hospitals. A constantly increasing number of such institutions have made membership in the county society a prerequisite for staff appointments.

8 The Standard Nomenclature of Disease, now published by the Association, is being advocated in all cases in which hospitals are at liberty to consider the adoption of a new terminology. The ultimate advantage of uniformity in this respect needs no special comment.

9 The Mental Hospital Survey Committee has requested and received the effective cooperation of the Council. An officer of the committee has spent considerable time at Association headquarters studying our records, and the secretary of the Council has considered with Dr. Walter L. Treadway, chairman of the committee, means of securing additional data concerning the mental hospitals.

10 In considerable numbers, students unable to secure admission to medical schools in this country or in Canada still migrate to European countries and, after completing a medical course, return to the United States to practice. The problem is aggravated by the large number of foreign born physicians now seeking asylum over here. Some states complacently accept foreign credentials at their face value. Others write to the Council for an evaluation of such documents. Obviously, the American Medical Association has no means of securing official reports from European schools or of making personal inspections, and it is therefore utterly impossible for the Council to underwrite or guarantee the education of a medical student trained abroad. The state of California has passed a law that in order to be eligible for the license examination all candidates presenting foreign credentials must spend at least one year in an approved hospital or medical school in the United States.

11 It is thirty-one years since the publication of the Council's first classification of medical schools. Although all but one of the states have statutory authority to exclude from the licensing examination the graduates of low grade medical schools, in 1937 there were 233 such graduates licensed in thirteen states. It would seem that state medical societies might be more active in demanding that the standards of our profession be upheld and the interests of the public protected by restricting the privilege of licensure to those known to have been trained in first class medical schools.

12 Within the year, two have been added to the Council's staff, Dr. Hamilton H. Anderson and Dr. Stuart P. Cromer. The latter succeeds Dr. Carl M. Peterson, who has become Secretary of the Council on Industrial Health.

13 The Council has prepared exhibits for the conventions of the American College of Surgeons at Chicago, the American Hospital Association at Atlantic City, the Catholic Hospital Association at Chicago, the Tri-State Hospital Association at Chicago, the New England Hospital Association at Boston, a Hospital Bazaar at Cumberland, Md., and at the Capitol Theater, Davenport, Iowa, in addition to the Atlantic City session, and has been officially represented at the inauguration of President Rufus C. Harris of Tulane University and President Oliver C. Carmichael of Vanderbilt University.

14 As usual, the Council has prepared material for special issues of THE JOURNAL—the Educational Number, Aug. 28, 1937, the Hospital Number, March 26, 1938, and the State Board Number, April 23, 1938. It has contributed to the revision of the Interns' Handbook and published the Proceedings of the Annual Congress on Medical Education and Licensure. For the Fifteenth Edition of the American Medical Directory, the Council has revised the data on hospitals and medical schools.

15 During the year ended March 31, 1938, 319 hospitals have been visited, nine medical schools and fourteen schools for training of technicians.

16 The Council has cooperated with the Bureau of Exhibits in preparing material for the 1939 fair at San Francisco and New York.

17 Some changes have been found necessary in the format of an Acceptable School of Occupational Therapy. In revised form they are submitted for ratification.

Respectfully submitted

#### COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

RAY LYMAN WILBUR, Chairman  
FREDERIC A. WASHBURN  
J. H. MUSSER  
FRED MOORE  
REGINALD FITZ  
FRED W. RANKIN  
CHARLES GORDON HEYD  
WILLIAM D. CUTTER, Secretary

#### REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

*To the Members of the House of Delegates of the American Medical Association*

The Council on Scientific Assembly has given official attention to matters which properly come before it for consideration.

The annual Conference of Section Secretaries with the Council was held in Chicago on Dec. 17, 1937. At this conference the desirability of effecting some changes in the nature of the programs of the sections of the Scientific Assembly was fully discussed, and it is possible that some such changes will be instituted at the next annual session in an effort to vitalize the section programs and to permit important scientific subjects of mutual interest to be presented and discussed at joint meetings of two or more sections. While it is true that in the past symposia participated in by two sections have been presented, it is possible that the interest in the scientific work of the Association may be greatly increased and the value of section programs enhanced through an arrangement that will permit joint meetings participated in by several sections, such meetings to be held on the last day of the Scientific Assembly at each annual session.

At the annual session in 1937 the program of the General Scientific Meetings on Tuesday morning was divided so that in one section the discussions pertained to subjects in the field of general medical practice while in the other section the program was devoted entirely to surgical subjects. This new arrangement met with such enthusiastic response that it will be continued. At the San Francisco session the entire program for Tuesday will be divided into two sections, one dealing with general medicine and the other devoted entirely to the discussion of surgical subjects. The attendance at the General Scientific Meetings and the interest in the programs presented have constantly increased until these meetings now constitute a distinct feature of each annual session. It is the earnest desire of the Council on Scientific Assembly to make these programs as helpful as possible to the rank and file of the profession.

The official program of the San Francisco session is submitted as a part of the report of the Council on Scientific Assembly. The Council desires to express openly its appreciation of the valuable service rendered by the section officers, who have been responsible for the preparation of the section programs.

At a later time during this session the Council on Scientific Assembly will submit to the House of Delegates nominations for Affiliate Fellowship.

Respectfully submitted

JAMES E. PAULLI, Chairman  
J. GURNEY TAYLOR  
A. A. WALKER  
J. C. FISHBEIN  
CLYDE L. CUMMINS  
IRVIN ABELL, President Elect  
MORRIS FISHBEIN  
Editor, THE JOURNAL  
OLI WEST, Secretary

} Ex officio

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 30, 1938

## THE BLEEDING PEPTIC ULCER

Considerable differences of opinion are apparent as to the incidence, the mortality rates and the treatment of bleeding peptic ulcer. Hurst<sup>1</sup> found the incidence of hemorrhage in all types of peptic ulcer about 27 per cent and the mortality from the same source about 15 per cent in general practice. Since the incidence is 27 per cent, the mortality from hemorrhage in all cases of ulcer is about 0.4 per cent. The mortality in patients with ulcer admitted to Guy's Hospital because of hemorrhage was 4.8 per cent. The mortality from hemorrhage in patients with a history of hemorrhage is under 2.5 per cent and the mortality from hemorrhage in all cases of ulcer, including those in which bleeding never occurred, is about 1 per cent. Hurst concludes that since the total mortality as the result of all surgical procedures for gastric and duodenal ulcers is much greater than that from hemorrhage in all cases of ulcer, and as hemorrhage is by no means rare after operations on patients with ulcer who have already bled, surgical treatment cannot be regarded as a means of prophylaxis against fatal hemorrhage.

The conservative treatment of bleeding gastroduodenal ulcer consists of rest in bed, morphine, starvation for the first twenty-four hours, salt solutions with or without dextrose by rectum and later by a graduated diet and alkalis. Blood transfusion both as replacement therapy and for its effect on the coagulability of the blood and on hematopoiesis has been widely adopted in this country as an important adjunct to the general conservative treatment. The advantages of administration of large doses of epinephrine, iron and the various hemostatics are negligible.

An interesting and radical innovation was introduced by Meulengracht<sup>2</sup> of Copenhagen, who reported a sensationally low mortality of less than 1 per cent among 251 patients admitted to Bispebjerg Hospital because of severe hematemesis or melena. He fed his patients an abundant and varied diet in puree form

from the first day of admission to the hospital. He believed that food and alkalis, by neutralizing the gastric acidity, would prevent further penetration by the ulcer and reduce the gastric motility, while the supply of nourishment and vitamins would favor the healing process. Woldman<sup>3</sup> reported a series of twenty-one cases of severe gastroduodenal hemorrhage in which treatment by the continuous administration of colloidal aluminum hydroxide by means of a special drip apparatus was successful.

Finsterer,<sup>4</sup> who for the past two decades has consistently urged the most radical attitude toward bleeding peptic ulcer, believes the remarkable results obtained by Meulengracht were due to the fact that he dealt with superficial ulcers or cases of ulcerative gastritis. He calls attention to the reports of Bulmer, Aitken, Gordon, Gordon-Taylor, Chiesman, Hinton and others whose mortality statistics are in sharp contrast to those of Babey, Hurst and Conybeare. Bulmer<sup>5</sup> reported, in an analysis of cases treated at the Birmingham Hospital for a period of thirty years, a mortality of 10.7 per cent, the death rate among men being at least double that among women and occurring at rather a later age. Aitken reported a mortality of 47.2 per cent. According to Gordon-Taylor, the mortality in cases of hematemesis from chronic ulcer of the stomach or duodenum treated medically at the Middlesex Hospital from 1924 to 1933, in which a second large hemorrhage took place, was no less than 78 per cent and with each successive bleeding the death rate became higher. Chiesman<sup>6</sup> reported a mortality of 25 per cent among 191 patients admitted to St. Thomas's Hospital during the period 1925-1931. This mortality was equivalent to that of perforated ulcers in the same group. Bleeding continued or recurred in forty-eight males and in fourteen females twenty-four hours after they came under treatment. Mortality in this group was 74 per cent. Postmortems on forty-five of these revealed that the common cause of repeated hemorrhage was a partially eroded vessel of considerable size in the floor of an ulcer, the type of the ulcer being callous in thirty cases and acute in seven; multiple ulcers were present in other cases. He concludes that, in the group of cases presenting a mortality of 74 per cent, operative treatment might have improved the recovery rate. From the clinical histories and the postmortem observations in these cases it is evident that there is a special form of bleeding ulcer caused by erosion of a large artery and capable after one or two massive hemorrhages of exsanguinating the patient. Bleeding of this type was considered by von Mikulicz a most urgent emergency. Indeed, one is reminded of the classic

<sup>3</sup> Woldman, E. F. The Treatment of Hematemesis and Melena by a Continuous Aluminum Hydroxide Drip. Report of Twenty One Cases. *Am J M Sc* 194 335 (Sept) 1937.

<sup>4</sup> Finsterer, Hans. Indikation Stellung zur operativen Behandlung der akuten schweren Magenblutung. *Wien med Wchn hr* 87 302 (March 15) 1919.

<sup>5</sup> Bulmer, Ernest. Mortality from Hematemesis. *Lancet* 2 720 (Oct 1) 1932.

<sup>6</sup> Chiesman, W. F. Mortality of Severe Hematemesis from Peptic Ulcer. *Lancet* 2 722 (Oct 1) 1932.

<sup>1</sup> Hurst, A. F. The Incidence, Mortality and Treatment of Hemorrhage. *Curr Sci* 110 p. Rep. SG 135 (Jan-April) 1916.

<sup>2</sup> Meulengracht, E. Treatment of Hematemesis and Melena with Food. The Mortality. *Lancet* 2 1220 (Nov 10) 1913.



description by Moynihan of a callous, deeply penetrating duodenal ulcer with exposed stiff arteries. Such bleeding is not likely to stop of itself and waiting is more dangerous than operation. In such cases Finsterer's dictum of operation within the first twenty-four to forty-eight hours has validity and is supported by Gordon Gordon-Taylor, Traver and Clavel, Allen and others. In a series of thirty-five early partial gastric resections performed by Finsterer for severe hemorrhage there was only one death from pneumonia. In a group in which a late operation was performed his mortality amounted to 30 per cent.

The first and most urgent problem then is to determine whether the bleeding comes from a superficial ulceration or from a deeply penetrating ulcer. A history of a long existing ulcer, of persisting severe pains characteristic of penetration and adhesion to a neighboring viscus, and the roentgenologic niche are all evidences of a penetrating callous ulcer. Means would limit operative procedure to patients bleeding after 50 years of age or those having repeated hemorrhages. The problem of the bleeding peptic ulcer is certainly not a case of surgery versus medicine. On the contrary, the cooperation of the internist and the surgeon is most desirable. Each case must be evaluated in the light of its history, roentgenologic appearances, the age of the patient and the type of bleeding. If surgical operation appears to be indicated, it should not be unduly delayed.

#### FEDERAL FOOD AND DRUG BILL CONDEMNED

The food and drug bill recently reported to the House of Representatives by the Committee on Interstate and Foreign Commerce<sup>1</sup> has been vigorously condemned in a minority report<sup>2</sup> signed by six members of the committee and in a letter from the Secretary of Agriculture embodied in that report. This condemnation is based primarily on the proposal in section 701 (f) of the bill to empower the United States district courts throughout the country (1) to review certain orders that may be promulgated by the Secretary of Agriculture under authority of the proposed law, (2) to restrain the secretary from putting such orders into effect, and (3) to direct the secretary to take whatever further action the court may think justice requires. Such reviews may be initiated in any one of eighty-three district courts, on the petition of any importer, producer, manufacturer, distributor or dealer in foods, drugs, diagnostic and therapeutic devices and cosmetics who feels that he is aggrieved by the secretary's order. The idea of investing the district courts of the country with such authority as this bill proposes discloses a novel concept of the relations between the administrative, legislative and judicial functions of our government.

This proposal for the enactment of court review legislation savors strongly of the influences that have heretofore prevented the inclusion of adequate standards in any pending legislation relating to drugs and diagnostic and therapeutic devices and that brought about the attenuation of the restrictions on false and fraudulent advertising proposed in such legislation.

Concerning the section of the bill denounced by him, the Secretary of Agriculture says

I am of the opinion that if section 701 (f) remains in the bill its effect will be to hamstring its administration so as to amount to a practical nullification of the substantial provisions of the bill.

It is the Department's considered judgment that it would be better to continue the old law in effect than to enact S. 5 in this provision.

Of the same section of the bill, the minority report of six of the committee members says

If this bill is enacted into law with section 701 (f), the court review section, in it, as reported by a majority of the committee what started out as an effort on the part of the advocates of a more adequate food and drug law to enlarge the scope of the existing law, to fill in the loopholes in it, and to put more teeth into it, will end with having accomplished the directly opposite result and years of earnest effort will have gone for worse than naught.

Official, disinterested denunciations such as these seem to justify a demand by every consumer of foods and drugs and every user of diagnostic and therapeutic devices and of cosmetics that his representative in Congress use his best efforts to prevent the enactment of the food, drug, device and cosmetic bill, S. 5, in the form proposed by the committee. The defeat of the bill in its entirety might not be altogether disadvantageous for it would provide an opportunity for the introduction into later legislation of proper standards for drugs and devices. The delay would provide time also for search for a more promising method of controlling the introduction of new drugs than that proposed in the pending bill.

#### THE STUDY OF DISEASE AMONG BRITISH POST OFFICE EMPLOYEES

Observations based on the 260,000 employees of all ages and varied activities of the English post office system enabled Bashford<sup>1</sup> to present convincing evidence of the reciprocal dependence of industry and medicine. The post office is unique in that there is in England no other body of industrial workers of anything approaching its size that has accurate sick records analyzed yearly in terms of occupational groups and geographic distribution. The records date from the middle of the last century and hence lend themselves readily to a certain type of study.

The incidence of pulmonary tuberculosis in this group compares favorably with that in the community at large and during the last twenty years has shown a steady downward trend. In an analysis of 3,755 cases observed

<sup>1</sup> S. 5 H. R. Rep. 2139 Part 1 75th Congress Dis. Cus. ed. editorially in THE JOURNAL April 23 page 1370  
<sup>2</sup> S. 5 H. R. Rep. 2139 Part 2 75th Congress

<sup>1</sup> Bashford H. H. The Contribution of Industry to Medicine. F. Roy Soc. Med. 21 183 (Jan.) 1938

over the last twenty years, it was found consistently that in only 50 per cent of all new cases of pulmonary tuberculosis was it ever possible to return to active duty. There was a further wastage of 48 per cent during the following ten years because of recurrent pulmonary tuberculosis or other forms of ill health. A follow-up study of 430 employees with gastric or duodenal ulcer showed that 31 per cent, no matter how treated, incurred regularly at least a month's sick absence every year for recurrent digestive disorders or other forms of ill health. A further 27 per cent had sick absences of shorter periods. This industrially unsatisfactory record should certainly receive close attention. The post office was one of the first pensionable services to accept persons with adolescent or "orthostatic" albuminuria. Thirty years ago Bashford examined a group of thirty and reexamined them after periods of service varying from seven to fourteen years. Twenty per cent still exhibited the condition but were apparently in good health. Seventeen years later, with the exception of three who had left the service for extraneous causes, two who could not be traced and one who had died from acute nephritis, the whole group again was examined and all found in good health.

Bashford includes a brief report of the three year experiment with vaccine in the attempted prevention of colds. The vaccine used contained *Bacillus influenzae*, *Staphylococcus pyogenes*, *Streptococcus pyogenes*, *Pneumococcus* types I and II, *B. coryzae*, *segmentosus* and *B. friedlander*. The colds in adequate control groups were also recorded. The average sick absence from colds among those receiving the vaccine during the first year of the experiment was less by half of one day than that of the noninoculated group. During the second year the average sick absence for such disorders among the inoculated was one-tenth day higher than that in the noninoculated controls, and during the third year two-tenths day higher than that of the controls. While no claim to finality is made, the results indicated definitely that the routine provision of this vaccine against colds for the staff as a whole was not yet a measure that could be justified by the results experienced.

The experiences with quarantine for infectious disease may have far reaching significance. For some years any contact subsequently acquiring infectious disease had to be reported. Of 17,844 contacts with scarlet fever, only one in 251 subsequently acquired the disease. Of 17,436 contacts with measles, only one in 670 became infected, and out of 7,697 contacts with diphtheria, only one in every 274 became ill with that disease.

About 30 per cent of all sickness is included in the respiratory group of disorders, and this is true both for men and for women. About 10 per cent is included in the digestive group and this is again true of both sexes. Surprisingly, about 10 per cent of male illness

was incurred in the rheumatic group of disorders while it is recorded in only 4 per cent of the women. Nervous disorders accounted for 14 per cent of the women's disability but only 6 per cent of the men's absences. Finally there is that vague class of illness which, while there would seem to be no factor of true malingering, suggests a condition of self pity and making much of little. The examination of forty cases of repeated, relatively trivial accumulating sick absences showed an underlying factor of apparently this type. Over a period of four years, these forty people had among them incurred 736 sick absences, totaling 6,194 days. Kindly advice was given that, if these sick records continued, retirement on grounds of persistent ill health would have to be considered. The following six months showed only fifty-four days' sick absence among the whole forty. In other words, their six monthly average of illness dropped abruptly from nineteen to one and three-tenths days per person.

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## Current Comment

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### BILE SALTS AND ARTHRITIS

Observations by several clinicians independently that the development of jaundice in certain arthritic patients produced a definite remission in joint symptoms has stimulated two further studies. Hench<sup>1</sup> has just made available the results of clinical and chemical studies on thirty-one patients whose rheumatic symptoms were partially or completely relieved coincidentally with the onset of spontaneous jaundice. The phenomenon appeared to depend more on the quantity than the quality of jaundice, and the concentration of serum bilirubin served as a general index of the degree of relief. The analgesic effect of jaundice was usually noticed within the first three days after the jaundice became readily visible. Twenty-two of the thirty-one new patients obtained complete relief and the other nine were largely if not entirely relieved. Attempts to reproduce the relief by administration of whole bile and certain of its constituents were made. Transfusions of deeply jaundiced blood were tried and jaundice was produced by the administration of toluylenediamine, by these means and with the rather small doses used, the phenomenon of arthritic relief was not reproduced. Thompson and Watt,<sup>2</sup> reporting also in a recent issue of the *Archives of Internal Medicine*, first noted the effect of administration of various bile constituents on rabbits. Then they gave a patient with chronic nonspecific atrophic arthritis daily doses of 10 mg. of bilirubin per kilogram intravenously for four days and on the fifth, sixth and seventh days added 40 mg. of sodium dehydrocholate per kilogram. After four injections of

1 Hench P S. Effect of Jaundice on Chronic Infectious (Atrophic) Arthritis and on Primary Filicities. Further Observations. Attempt to Reduce the Phenomenon. *Arch. Int. Med.* 61: 451 (March) 1938.

2 Thompson H E and Watt J L. Experimentally Induced Jaundice (Hyperbilirubinemia). Report of Animal Experimentation and of the Physiological Effect of Jaundice in Patient with Atrophic Arthritis. *Arch. Int. Med.* 61: 451 (March) 1938.

bilirubin, slight icterus developed but was not accompanied by relief of symptoms. Within eight hours after the fifth injection, however, definite relief from pain in all the involved joints occurred. The combination of bilirubin and bile salt was then given to eight patients with chronic atrophic arthritis. The combination of bilirubin and bile salt given by the technic which these investigators finally found satisfactory appeared to be effective in the amelioration of symptoms of atrophic arthritis, although neither of the constituents alone produced this effect. Further study and confirmation are required before these observations can be applied generally in the treatment of atrophic arthritis, but the preliminary observations seem most suggestive of a new avenue of approach to this difficult problem. Moreover the similar amelioration of arthritis in some women during pregnancy as recently noted by Hench<sup>3</sup> suggests that the agents responsible for both phenomena are at least closely related but that if a chemical substance it is neither bilirubin nor a strictly female sex hormone.

### PROPOSED FEDERAL SANCTION OF OSTEOPATHY

Osteopathy will be sanctioned as a method of treating sick and injured federal employees under the United States Employees' Compensation Act, as amended,<sup>1</sup> if a bill<sup>2</sup> favorably reported to the House of Representatives by its Committee on the Judiciary is enacted. The bill was introduced by Congressman Drew of Pennsylvania, an osteopath. As introduced, it proposed to place osteopaths on the same plane as qualified doctors of medicine, under the United States Employees' Compensation Act, making no reference to the restrictions placed on them by the laws of many of the states in which they practice. The committee, however, in making its report has recommended that such osteopathic treatment as may be rendered under the act, at the expense of the United States government, be limited to treatment tolerated by the laws of the state in which it is administered. However, not every osteopath will be permitted to treat government employees even to that extent, but only such as are designated by the United States Employees' Compensation Commission. The osteopaths of the country have maintained continued pressure to procure the favorable report that has now been made on this bill. They will doubtless continue that pressure in the hope of procuring its enactment. Whether they do or do not succeed will depend on the physicians of the country. If every physician who believes that osteopathy is not a safe method of diagnosing and treating disease and injury protests to his congressman against the enactment of this bill, its defeat will be assured.

<sup>3</sup> Hench P. S. The Ameliorating Effect of Pregnancy on Chronic Atrophic (Infectious Rheumatoid) Arthritis, Fibrositis and Intermittent Hydrarthrosis. *Proc. Staff Meetings Mayo Clinic* 12: 161 (March 16) 1938.

<sup>1</sup> United States Code 1934 edition title 5 chapter 15.  
<sup>2</sup> H. R. 4630 H. R. Rep. No. 2170 75th Congress.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### CALIFORNIA

**State Medical Meeting at Pasadena May 9-12**—The sixty-seventh annual meeting of the California Medical Association will be held at the Hotel Huntington, Pasadena May 9-12, under the presidency of Dr. Howard Morrow, San Francisco. The Los Angeles County Medical Association and its Pasadena branch will act as hosts, with Dr. George H. Lee of Los Angeles, president of the former, delivering the address of welcome. The out of state speakers will include:

Dr. Udo J. Wile, Ann Arbor, Mich., The Relation of Syphilis to Surgical Problems.  
Dr. Tinsley R. Harrison, Nashville, Tenn., Cardiac Dyspnea.  
Dr. Alexis F. Hartmann, St. Louis, Studies on Hypoglycemia in Infants and Children.  
James B. Hamilton, Ph.D., New Haven, Conn., Experimental Production in Animals of Conditions Similar to Those of the Adrenal Syndrome in Humans.  
Dr. Thomas D. Moore, Memphis, Tenn., The Cystoscopic Implantation of Radium Element in Tumors of the Bladder.

Dr. Harrison, with another guest speaker, Dr. Alfred Blacklock, Nashville, will conduct a clinical pathologic conference Tuesday and a symposium on shock. There will also be symposiums on vitamins and nucleus pulposus rupture and its relation to injury. Entertainment will include a trip to Griffith Park Planetarium, golf and a trip to a motion picture studio. The president's dinner will be held Tuesday night.

### CONNECTICUT

**Changes in Health Officers**—Dr. John E. Stoddard has been appointed health officer of Meriden to succeed Dr. Michael J. Sullivan. Dr. Winfield E. Wight is the new health officer of Thomaston, succeeding Dr. James H. Kane, resigned. Dr. Ernest R. Pendleton has been appointed health officer of the town of Granby.

**Society News**—The New Haven Committee on Social Hygiene has been reorganized under the auspices of the New Haven Foundation and the New Haven Department of Health. The new name will be New Haven Child Hygiene Association. Miss Mary Harkin has been chosen executive secretary. —Dr. Arvid Lindau, professor of general pathology and bacteriology, University of Lund, Sweden, addressed a special meeting of the Yale Medical Society March 24 on "Benign Lymphogranuloma (Sarcoid of Boeck)."

### DISTRICT OF COLUMBIA

**Annual Scientific Assembly**—The Medical Society of the District of Columbia will hold its annual scientific assembly May 4-5 in the Medical Society Building, 1718 M Street N.W., Washington. The out of town speakers on the program include:

Dr. William P. Healy, New York, Carcinoma of the Corpus Uteri: Treatment and Prognosis.  
Dr. Perrin H. Long, Baltimore, The Mode of Action and Toxicity of Sulfanilamide.  
Dr. Ramon Castroviejo, New York, Eye Surgery (motion picture).  
Dr. Roy Upham, New York, New Trends in Diseases of the Stomach.  
Dr. Jacob Sarnoff, Brooklyn, Diseases of the Breast (motion picture).  
Dr. Paul Titus, Pittsburgh, Human Sterility.

A public meeting Wednesday evening will be addressed by Dr. William R. Houston, Austin, Texas, on "Western Medicine in China." Hon. Halton W. Summers will address the luncheon Wednesday on "Natural Laws in Government Clinics will be offered and the annual banquet will be Thursday evening at the Mayflower Hotel.

### ILLINOIS

**Society News**—Dr. Marcus Pinson Neal, Columbia, Mo., addressed the St. Clair County Medical Society in East St. Louis April 7 on "Reactive Blood Cells in Acute Infections." —Dr. Arthur Carlton Ernstene, Cleveland, discussed "Differential Diagnosis of Coronary Artery Disease before the Sangamon County Medical Society, Springfield April 7.

### CHICAGO

**University News**—The John and Mary Markle Foundation of New York City has made a grant of \$10,000 to support research work on neurophysiology for three years under the supervision of Dr. Ernst Gellhorn, professor of physiology, University of Illinois College of Medicine.

**The Luckhardt Lecture**—Dr Henry E Sigerist, William H Welch professor of the history of medicine Johns Hopkins University School of Medicine Baltimore delivered the Arno B Luckhardt Lecture at Albert Merritt Billings Hospital April 28, his subject was "Principles of Greek Medicine"

**Former Mental Patients Form Society**—Sixty-four former patients of the Psychiatric Institute of the Illinois Research and Educational Hospitals, University of Illinois, organized the "Association of Former Patients of the Psychiatric Institute of the University of Illinois" at a meeting April 3. Designed primarily to reestablish its members in society, the new organization aims to help the physicians of the institute to study the subsequent adjustment of the patients, to engage in an educational campaign for the purpose of changing the attitude of the community toward mental disease and to promote the economic interest of former patients. The new association plans to form an employment agency and to issue a monthly bulletin. At the time of this report the association had seventy-five members.

## INDIANA

**Personal**—Dr Harry H Botts, medical officer in charge of the Veterans Administration Facility, Veterans Administration Hospital, near Marion, has been transferred to the facility at Chillicothe, Ohio, succeeding Dr Dennis J Murphy. The latter will take over the Marion post.

**Society News**—Dr Cyrus W Rutherford Indianapolis has been elected president of the Indiana Academy of Ophthalmology and Otolaryngology, succeeding Dr Emory E Holland, Richmond.—The Northeastern Indiana Academy of Medicine was addressed in Kendallville March 31 by Drs Laurence E Hines and James Roscoe Miller, Chicago on diagnosis and treatment of coronary occlusion.—The Indianapolis Medical Society was addressed April 26 by Drs Charles P Emerson on "The Physical Basis of Emotional Disturbances" and Charles R Bird, "Diagnostic Trends and Psychoneurosis." Dr Fred L Adair, Chicago, discussed "Maternal, Fetal and Neonatal Morbidity" before the society March 29.

**State Tuberculosis Meeting**—The Indiana Tuberculosis Association and the Indiana Trudeau Society met in joint annual session in Indianapolis April 20-21. The speakers included

Dr Philip H Becker, Crown Point Pneumoconiosis  
Dr Robert A Staff, Richmond Laboratory Diagnosis of Tuberculosis  
Dr Paul D Crimm, Evansville Treatment of Childhood Tuberculosis  
Dr Donald W Brodie, Oaklandon Extrapulmonary Tuberculosis  
Dr Mason B Light, Indianapolis Specular Examination  
Dr Jerome V Pace, Rockville Malignancy of the Lung  
Dr Harvey L Murdoch, Fort Wayne Silicosis

At a general session the evening of April 20 the speakers included Drs Calvin C Applewhite, U S Public Health Service, on "Place of Tuberculosis Control in a Whole Time Health Program" and Robert G Bloch, Chicago, "The Approach to the Tuberculosis Problem."

## KANSAS

**State Medical Meeting at Wichita**—The seventy-ninth annual session of the Kansas Medical Society will be held in the Wichita Forum, May 9-12, under the presidency of Dr Jacob F Gsell, Wichita. The speakers will include

Dr Harold E Robertson, Rochester Minn, Diseases of the Gallbladder, Bile Ducts and Liver Practical Considerations  
Dr Horton R Casparis, Nashville Tenn, The Medical Aspects of Child Behavior  
Dr William B Carrell, Dallas Texas, Fractures of the Hip in the Aged with Indications for Nails and Bone Graft  
Dr John H J Upham, Columbus Ohio, President American Medical Association Economic Aspects of Medicine  
Dr Louis J Karnosh, Cleveland Malignancy in Modern Psychiatry  
Dr Thomas D Allen, Chicago, What Kind of Cooperation Should There Be Between the Ophthalmologist and His Colleagues in Other Specialties?  
Dr Aaron Arkin, Chicago, Cardiovascular Syphilis Diagnosis and Therapy  
Dr Alfred I Folsom, Dallas Texas, Some Practical Considerations in the Treatment of Chronic Gonorrhea  
Dr Vernon C David, Chicago, Some Etiologic Considerations of Cancer of the Large Bowel  
Dr Dean D Lewis, Baltimore, The Differential Diagnosis of Bone Tumors  
Dr Harold I Illie, Rochester Minn, General Considerations of the Physiology of the Nose as Pertains to General Practice  
Dr Fred E Angle, Kansas City, Undulant Fever—Its Present Clinical Status  
Dr Clifford J Mullen, Kansas City, Analysis of Program for the Blind of the Kansas State Board of Social Welfare  
Dr Harold W Lewers, Topeka, Hoarseness  
Dr La Verne B Spake, Kansas City, Diagnosis and Classification of Surgical Malocclusion  
Dr Cole S Powell, Lawrence, Oculoplegic Mydriatics and Myotics

There will be luncheons and entertainment will include golf and skeet tournaments, a golf and skeet banquet, the alumni

'round-up' Tuesday evening, and the annual banquet Wednesday evening. Radio talks for the public will be delivered during the week. The Sedgwick County Medical Society will be host to the state meeting and will sponsor the 'Hall of Health,' an exposition showing the basic facts of anatomy and physiology of man, the causes and prevention of disease and the conservation of health.

## MASSACHUSETTS

**Personal**—Dr James J Minot was elected to fill the newly created position of honorary president of the Boston Tuberculosis Association at a recent meeting.

**Society News**—Dr John G Downing, Boston, discussed 'Dermatitis Venenata Due to Cosmetic and Industrial Irritants' before the Norfolk District Medical Society recently.—At a meeting of the New England Heart Association in Boston March 28 the speakers included Drs Mark D Altschule on 'Effect of Digitalis in Partial Heart Block' and Herrman L Blumgart on 'Cardiac Cirrhosis'.—At a meeting of the Boston Society of Anesthetists, March 15, Dr Gustave Philip Grabfield spoke on 'Clinical Thoughts on Pharmacology of Central Nervous System Depressants'.—The New England Society of Physical Medicine was addressed in Boston March 16 by Drs Heinrich G Brugsch and Joseph H Pratt on 'Indications and Contraindications of Ultra Short Wave Therapy'.—Dr Samuel H Epstein, among others, addressed the Boston Society of Psychiatry and Neurology, March 17 on 'The Pathogenesis of Syphilitic Optic Atrophy'.—At a joint meeting of the Suffolk District Medical Society and the Obstetrical Society of Boston March 15, Dr James M Faulkner discussed 'Heart Disease in Pregnancy'.—Dr Chester M Jones addressed the South End Medical Club in Boston, March 15 on 'Diagnostic Aspects of Pain Referred from the Digestive Tract'.

## MICHIGAN

**Professor of History of Medicine**—Dr Alfred O Lee, professor of modern languages, University of Michigan, Ann Arbor was recently appointed in addition professor of history of medicine by action of the board of regents according to the University Hospital Bulletin. This appointment is in the College of Literature, Science and the Arts and was granted to Dr Lee in recognition of the fact that his interest in medical history has led him to include instruction in this subject in his German courses for premedical students and in his course in the sociology of medicine, also given for premedical students. Dr Lee received his medical degree from the University of Heidelberg, Germany, but has never practiced medicine.

**Personal**—Dr David R Clark, Detroit has been made an honorary member of the Wayne County Medical Society.—Dr Joseph Stanley Leszynski, Detroit, has been appointed a member of the state board of registration in medicine, succeeding Dr Frederick H Cole and Dr Francis J O'Donnell, Alpena to fill the unexpired term of Dr Elmer W Schnoor, Grand Rapids. Drs Eugene S Thornton, Muskegon, Harold L Morris, Detroit, and John J Walsh, Escanaba have been reappointed to serve as members of the board.—Dr William H Haughey, Battle Creek, was guest of honor at a dinner given by the Calhoun County Medical Society April 5 in recognition of his completion of fifty years of medical practice.

**Society News**—The Detroit Bar Association and the Wayne County Medical Society were addressed March 21 by Hon John V Brennan, judge of recorder's court of Detroit. Hon Harry S Toy, former attorney general of Michigan and former justice of the Michigan Supreme Court, Dr Lowell S Selling, director and Dr John A Larsen, assistant director psychopathic clinic, recorder's court the program was a symposium on the lie detector.—Dr Charles G Johnston, Detroit discussed intestinal obstruction before the St Clair County Medical Society March 1.—The Ionia Montcalm Counties Medical Society was addressed in Greenville March 8 by Drs Henry J Vandenberg and Charles F Ingersoll both of Grand Rapids on 'The Physician's Responsibility in Cancer and Practical Problems in X-Ray Therapy' respectively.—Dr William Wagner, Toronto addressed the Highland Park Physicians Club and the Wayne County Medical Society April 4 on 'The Pathogenesis of Anemia'. Dr Andrew R Riddell, Toronto addressed the medical section of the county medical society April 11 on 'Silico and Its Relation to Tuberculosis and Other Fibrosing Lung Conditions'.

## MINNESOTA

**Graduate Courses in Obstetrics and Pediatrics**—The second statewide graduate course in obstetrics and pediatrics will begin in Crookston and Winona May 8. The Minnesota State Medical Association, the University of Minnesota Medical School and the state department of health are cooperating in the courses, which are being financed by social security appropriations. Other centers where the lectures will be given are May 11, Hibbing and Willmar, May 18, Albert Lea and Fergus Falls, May 25, Worthington and Bemidji. The sessions in each center will last all day. There will be four lectures in obstetrics and four in pediatrics given by two obstetricians and two pediatricians. Complete information may be obtained from Mr. R. R. Rosell, executive secretary of the Minnesota State Medical Association, 11 West Summit Avenue, St. Paul.

**Society News**—Dr. Arvid Lindau, professor of general pathology and bacteriology, University of Lund, Sweden, gave a Mayo Foundation Lecture at the Mayo Clinic, Rochester, April 7 on "Nutritional and Gastrointestinal Diseases." Dr. William E. Gallic, Toronto, lectured April 14 on hernia, and Dr. Arthur W. Meyer, professor of human anatomy, Stanford University School of Medicine, April 25 on "Chronic Kinetic Lesions with Special Reference to Those in the Intervertebral Disks."—Dr. Frederick A. Willius, Rochester, will discuss "A Less Common Manifestation of Rheumatic Heart Disease" before the Hennepin County Medical Society in Minneapolis May 2. The society was addressed March 23 by Ancel Keys, Ph.D., Rochester, on "Diagnosis and Prognosis of the Normal Man", it was addressed March 16 by Drs. Herbert M. N. Wynne, Minneapolis, on "Treatment of Second Stage Gonorrhea in Women" and Nora M. C. Winther, Minneapolis, on "Diagnosis and Treatment of Trichomonas Vaginalis."—Dr. Albert D. Ruedemann, Cleveland, discussed "Headaches of Ocular Origin" before the Minnesota Academy of Ophthalmology and Otolaryngology recently.

## NEW JERSEY

**Conference on Maternal and Child Health**—The twentieth annual conference on maternal and child health under the auspices of the state department of health will be held in Elizabeth, May 5. Among the speakers will be Drs. George W. Kosmak, New York, on "Progress in Maternal Welfare in the United States", Julius H. Hess, Chicago, "Progress in Child Health in the United States," and Ira S. Wile, New York, "Mental Hygiene and the World Around the Child."

## NEW YORK

**State Medical Meeting**—The one hundred and thirty-second annual meeting of the Medical Society of the State of New York will be held in New York at the Waldorf-Astoria May 9-12 under the presidency of Dr. Charles H. Goodrich, Brooklyn. Speakers at general sessions Tuesday and Thursday afternoons will be:

Mr. Victor E. Negus, London, "The Significance of Hoarseness";  
Dr. Irvin Abell, Louisville, Ky., "President Elect of the American Medical Association: The Relation of Diabetes to Surgery";  
Dr. Charles A. Gordon, Brooklyn, "Prevention of Maternal Deaths";  
George R. Cowgill, Ph.D., New Haven, Conn., "Vitamins and the Clinician";  
Dr. Frank H. Lahey, Boston, "Some of the Newer Surgical Entities of the Last Decade—Their Diagnosis and Management";  
Dr. Louis A. Bue, Rochester, Minn., "The Physician's Responsibility in Preventive Proctology";  
Dr. Edward A. Strecker, Philadelphia, "The Importance of Psychology in the Practice of Medicine";  
Russell W. Bunting, D.D.S., Ann Arbor, Mich., "Diet and Dental Caries."

Among invited guests who will address the sections are:

Dr. Paul Titus, Pittsburgh, "Cesarean Section—Its Relation to Maternal Mortality";  
Dr. Benjamin W. Carey, Jr., Boston, "Urinary Infections in Infants and Children—A Comparison of Therapeutic Methods";  
Dr. Arthur J. Vorwald, Syracuse, N.Y., "Dust and Disease";  
Dr. Raymond A. Vonderlehr, Washington, D.C., "Probabilities of a Disastrous Outcome in Treated and Untreated Syphilis";  
Dr. Paul A. O'Leary, Rochester, Minn., "Significance of Asymptomatic Neurosyphilis";  
Dr. Emanuel Ross, Mintz, Boston, "Kidney Tumors—Some Causes of Poor End Results";  
Dr. Royd R. Sayers, Washington, D.C., "Influence of Industrial Medical Work on General Health and Medical Science";  
Philip Drinker, C.E., Boston, "Effects of Breathing the Products of Combustion from the Electric Arc";  
Dr. Fremont A. Chandler, Chicago, "Surgery in Spastic Paralysis";  
Dr. Paul C. Colonna, Oklahoma City, "A Reconstruction Operation for Old Ununited Fractures of the Femoral Neck."

## New York City

**Lecture by Dr. Hammarsten**—Dr. Einar Hammarsten, professor of chemistry, Carolingian Medical University, Stockholm, Sweden, will deliver a lecture May 2 at the Rockefeller Foundation Theater under the auspices of the New York Medical College and Flower Hospital. His subject will be "The Duodenum and Its Associates, the Important Hormonal Centrum."

**Cornell Alumni Day**—The annual "Spring Day" of the Cornell University Medical College Alumni Association will be held at the college and New York Hospital May 5. During the day there will be a clinical program and the visiting alumni will be the guests of the board of governors of the hospital. At a banquet the speakers will be Edmund L. Day, Ph.D., president of Cornell, Mr. Austin H. MacCormick, commissioner of correction, and Dr. Benjamin J. Slater, medical director of the Eastman Kodak Company, Rochester.

**Annual Meeting of Milbank Fund**—The sixteenth annual conference of the Milbank Memorial Fund was held March 29-31 at the New York Academy of Medicine. Topics for discussion were new methods of testing for nutritional deficiencies and of appraising the state of nutrition, development of a program for eradication of tuberculosis, certain rural population problems, and the next steps to be taken in formation of a program for control of gonorrhea. Dr. Livingston Farrand, Brewster, N.Y., former president of Cornell University, was chairman of the conference, which was attended by more than 100 physicians and public health workers. Frank Porter Graham, D.Litt., president of the University of North Carolina, Chapel Hill, was the guest speaker at the annual dinner.

**Society News**—Speakers at a meeting of the New York Neurological Society with the section of neurology and psychiatry of the New York Academy of Medicine March 1 were Drs. Israel S. Wechsler on "Ephedrine in Treatment of Convulsive Seizures", I. I. Cohen, "Surgical Therapy in Certain Convulsive Disorders," and Sandor Lorand, "Perverse Tendencies and Fantasies—Their Influence on Personality."—Dr. Douglas Quick addressed the New York Roentgen Society, March 21, on cancer of the head and neck.—Dr. Madge T. Macklin, London, Ont., and Clara J. Lynch, Ph.D., addressed the New York Pathological Society at a joint meeting with the New York Gastroenterological Association March 29 on "Heredity in Cancer" and "Experimental Evidence on the Relation Between Heredity and External Factors in Cancer" respectively.

## NORTH CAROLINA

**State Medical Meeting at Pinehurst**—The eighty-fifth annual session of the Medical Society of the State of North Carolina will be held at the Carolina Hotel, Pinehurst May 2-4, under the presidency of Dr. Wingate M. Johnson, Winston-Salem. There will be general sessions Tuesday and Wednesday mornings. Among other speakers will be:

Dr. Edward A. Strecker, Philadelphia, "Functional Illness and the Medical Psychology Needed by the Practitioner in Its Treatment";  
Dr. Charles Gordon, Heyd, New York, "Clinical Essentials in Abdominal Diagnosis";  
Dr. George M. Cooper, Raleigh, "A Statewide Program for a Maternity and Infancy Service";  
Dr. Robert A. Ross, Durham, "Ovarian Cysts and Tumors";  
Dr. Charles R. Bugg, Raleigh, "The Diphtheria Problem";  
Dr. Walter J. Lackey, Tallon, "Function and Field of the Family Doctor";  
Dr. Vance P. Peery, Kinston, "Endoscopy";  
Dr. Julian M. Ruffin, Durham, "Amoebic Dysentery in North Carolina";  
Dr. Silas Raymond Thompson, Charlotte, "Mortality in Prostatic Surgery: Technique of Prostatic Resection."

Dr. Lester A. Wilson, Charleston, S.C., will be a guest of the section on gynecology and obstetrics speaking on "Late Puerperal Complications and Care." The North Carolina Public Health Association will hold its annual meeting May 2 with Dr. Wilson G. Smilie, New York, as the guest speaker at a dinner meeting on "Epidemiology of Acute Respiratory Infections."

## OHIO

**State Medical Meeting at Columbus**—The ninety-second annual meeting of the Ohio State Medical Association will be held in Columbus May 11-12 under the presidency of Dr. John B. Alcorn, Columbus. Headquarters will be at the Neil Hotel. Guest speakers will be:

Dr. Fred Wise, New York, "Eczema and Its Treatment by the Irritant";  
Dr. Clara M. Davis, Winnetka, Ill., "The Self Selection of Diet: Its Significance for Feeding in the Home";  
Dr. Terrin H. Long, Baltimore, "Observations upon Experimental Chemical Use of Sulfanilamide and Its Derivatives in the Treatment of Certain Infectious Diseases."



Dr Irvin Abell Louisville Ky President Elect of the American Medical Association Bilateral Renal Calculi  
Dr Sumner L S Koch Chicago Infections of the Hand  
Dr Hugo Roesler Philadelphia Hypertension  
Dr Gabriel Tucker Philadelphia Cancer of the Larynx Diagnosis and Treatment with Observations on the Relationship of Benign Tumors of the Larynx to Cancer

A round table luncheon has been arranged by the section on public health and preventive medicine, to be held at the Deshler-Wallick Hotel Wednesday noon May 11, with Mr Leo F Ey, chief of the division of laboratories, state department of health, and Dr Warren C Breidenbach, Dayton, as speakers on "Newer Developments in Public Health Laboratory Service" and "Modern Therapeutic Methods in Pulmonary Tuberculosis Their Relation to the Public Health" The annual banquet will be held Thursday evening at the Neil House

**Graduate Course in Toledo**—Dr Wilhelm Dressler, Vienna, was the lecturer for the fourteenth graduate course offered by the Toledo Academy of Medicine April 26 29 on "Diseases of the Heart" The closing lecture was given at a general meeting of the academy on 'Pregnancy and Heart Disease Surgery and Heart Disease and Diagnosis and Treatment of Arrhythmias'

### OKLAHOMA

**Society News**—The Garfield County Medical Society held a fracture symposium at Enid April 28 with Drs William B Carrell, Dallas Texas, and Earl D McBride, Oklahoma City, as guest speakers—Drs Hugh G Jeter and Joseph W Kelso, Oklahoma City, addressed the Pittsburg County Medical Society, McAlester, February 18, on 'Diagnosis of Cancer' and 'Ectopic Pregnancy' respectively

### OREGON

**Society News**—Dr Richard B Cattell, Boston, addressed the Multnomah County Medical Society, Portland, March 16 on "Diagnosis and Treatment of Carcinoma of the Rectum and Colon" A symposium on scarlet fever was presented before the society, March 2, by Drs Ralph A Fenton London Howard Smith and Adolph Weinzirl, Portland—Dr Blair Holcomb Portland, addressed the Central Willamette Medical Society, Eugene, February 3, on 'Practical Endocrinology with Special Reference to Management of Obesity'—At a meeting of the Coos and Curry Counties Medical Society in Marshfield February 2 the topic of round table discussion was hemolytic and nonhemolytic streptococcus infections

**Watch for Kidnaper Stevenson**—Oregon physicians are asked by the Federal Bureau of Investigation to watch for one Clarence Vernon Stevenson, wanted for the kidnaping of Mary McElroy of Kansas City, Mo in 1933 It has been reported that Stevenson, who uses the names of Clarence Stevens, Clarence Stevenson, Henry F Nelson and Steve" has a heart ailment and it is believed that he will consult a physician According to the notice sent out by the bureau, Stevens disease is "thought to be leakage and enlargement of the heart He has also suffered from rheumatism for years Physicians consulted by Stevens or who have any information about him are asked to notify the headquarters of the Federal Bureau of Investigation in Portland, by telephone or telegraph, government rate collect The telephone number is Atwater 6171, local 544 Stevens is aged 30 years height 5 feet 7 inches, weight 145 medium slender build chestnut hair gray eyes medium complexion, American, born in Butler, Mo

### PENNSYLVANIA

**Society News**—Dr Hugo Roesler, Philadelphia, addressed the Schuylkill County Medical Society at the Locust Mountain Hospital, Shenandoah, April 12 on 'Errors in Diagnosis and Treatment of Cardiovascular Disease'—Dr James R Johnston Pittsburgh addressed the Washington County Medical Society, Washington, April 13 on 'Office Gynecology'—Dr Charles Mazer, Philadelphia, addressed the Northampton County Medical Society April 15 on 'The Female Sex Hormones'

**Committee on Psychiatric Service to Courts**—On the authority of a resolution adopted at the annual meeting of the Medical Society of the State of Pennsylvania last October Dr Frederick I Bishop Scranton president of the society recently appointed a committee on psychiatric service The resolution recommended establishment of psychiatric services to assist the criminal courts of the commonwealth in the disposition of criminal offenders that adequate psychiatric service be established in all penal and correctional institutions in the

state and that every prisoner convicted of a felony be examined psychiatrically before he is paroled or commuted The committee, which was appointed to study ways of promoting these suggestions, consists of Drs Daniel J McCarthy, Philadelphia, chairman, Philip Q Roche, Philadelphia, Howard K. Petry, Harrisburg, Horace V Pike, Danville, and George J Wright, Pittsburgh

### Philadelphia

**Potter Lecture at Jefferson**—Dr William Boyd professor of pathology, University of Toronto Faculty of Medicine, delivered the William Potter Memorial Lecture at Jefferson Medical College April 18 on 'Growth, Normal and Abnormal'

**Memorial to Dr Robinson**—The trustees of the Philadelphia Institute for Medical Research unveiled a memorial tablet to the late Dr William Duffield Robinson April 7 at the institute's building at the Philadelphia General Hospital Dr Robinson who died in 1931, was active in the formation of the institute Dr Charles A E Codman, president of the board of trustees, presided and addresses were made by Drs Wilmer Krusen, Leonard G Rowntree and John D McLean

**Pediatric Pharmacy Week**—A committee of physicians and pharmacists is sponsoring the second annual Pediatric Pharmacy Week" May 1-7 Pharmacists in Philadelphia and its vicinity are asked to use their window space during the week for displays designed to illustrate the importance of preventive medicine, particularly of modern immunologic procedures, in the reduction of disease and death among children Dr William N Bradley and Ambrose Hunsberger, Ph M, are chairmen of the committee Physician members are Drs Emily P Bacon, Harvey Evert Kendig, Wilmer Krusen, Julian M Lyon, Henry Harris Perlman and Ralph M Tyson

**Society News**—Dr James B Collip, Montreal, addressed the Philadelphia Pediatric Society, April 12, on "Anterior Pituitary Hormones"—A special meeting on tuberculosis was held by the Philadelphia County Medical Society April 20 with the following speakers Drs Frank W J Burge on 'Pneumoperitoneum Oxyperitoneum and Nitroperitoneum in the Treatment of Pulmonary and Abdominal Tuberculosis' William Devitt, Allenwood, Pa, "The New versus the Old in Tuberculosis Treatment," and Kendall Emerson, New York, "Five Points in the Tuberculosis Campaign"—Dr Everett I Evans, among others addressed the Physiological Society of Philadelphia April 18 on 'Diabetogenic Activity of the Anterior Pituitary'

### Pittsburgh

**Society News**—Dr James H Rankin Jr, among others, addressed the Pittsburgh Neuropsychiatric Society, March 21, at the Allegheny County Home and Hospital, Woodville, on 'Metrazol Treatment of Schizophrenia'—Speakers at a meeting of the Pittsburgh Academy of Medicine April 12 were Drs Charles F Kutscher on 'Retinal Arteriolar Changes Significant of Hypertension', Adolphus Koenig, 'Photoelectric Cardiograms and Their Teaching Value" and Everett M Baker, 'Use of Peritoneal Drainage in Abdominal Operations'

### SOUTH DAKOTA

**State Medical Meeting at Huron**—The fifty-seventh annual session of the South Dakota State Medical Association will be held at the Marvin Hughtitt Hotel, Huron May 9-11 The morning sessions will be devoted to clinics conducted by guests In the afternoons addresses will be presented by the following speakers

Dr Henry E Michelson Minneapolis Dermatologic Diagnosis for the General Practitioner  
Dr Charles Wilbur Rucker Rochester Minn The Relation of Tears to Some Common Eye Diseases  
Dr Walter A Fansler Minneapolis Diagnosis and Office Treatment of Rectal Diseases  
Dr Virgil S Counsellor Rochester The Uterus as a Surgical Problem in General Practice  
H M Sweeney Ph D Vermilion The Physiology of Hypertension  
Dr Charles G Sutherland Rochester Minn The Value of the X Rays in Diagnosis  
Dr Henry F Helmbold Rochester Recent Advances in the Treatment of Urinary Infections in Childhood  
Dr Solon Mure White Minneapolis title to be announced  
Dr Everett D Phillips Iowa City Obstetric Syphilis  
Dr William W Bauer Chicago The Doctor in Health Education

The annual banquet will be held Tuesday evening May 10 with Dr Bauer as the speaker on 'Popular Beliefs That Are Not So' The South Dakota Academy of Ophthalmology and Otolaryngology will meet in the morning on May 10 with the following speakers Dr James D Alway Aberdeen on 'Foreign Proteins in Eye Therapy' George M Constans, Bismarck N D 'Management of Squint' Laurence R Boies Minneapolis 'Modern Uses of Endoscopic Procedures' and Charles W Rucker Rochester 'The Visual Pathways'

## TEXAS

**State Medical Meeting in Galveston**—The seventy-second annual session of the Texas State Medical Association will be held in Galveston May 10-12, with headquarters at the Hotel Galvez. Dr. Calvin R. Hannah, Dallas, is president. Guest speakers who will address general sessions are:

Dr. John H. J. Upham, Columbus, Ohio, President of the American Medical Association, Modern Problems of Medical Practice  
Dr. Reed M. Nesbit, Ann Arbor, Mich., The Place of Transurethral Resection in Prostatic Surgery  
Dr. Wendell G. Scott, St. Louis, Diagnosis of Thoracic Diseases Other Than Tuberculosis  
Dr. Robert A. Strong, New Orleans, Preventive Pediatrics  
Dr. Edwin E. Osgood, Portland, Ore., Differential Diagnosis and Treatment of Anemias  
Dr. Waitman Walters, Rochester, Minn., Earlier Recognition of Intra Abdominal Malignant Lesions  
Dr. Emil Novak, Baltimore, Cause and Treatment of Functional Uterine Bleeding  
Dr. John A. Kolmer, Philadelphia, Syphilis  
Dr. John J. Shea, Memphis, Tenn., Problems of the Deaf  
Dr. Arthur T. McCormack, Louisville, Ky., Whose Responsibility Is Public Health and Medical Service?

The guests will also address section meetings and several special combined section meetings, a new feature this year, as well as luncheon meetings. Dr. Ralph M. Waters, Madison, Wis., who will be the guest of the Texas Association of Medical Anesthetists, will address the section on surgery on "A Study of Morphine, Scopolamine and Atropine and Their Relation to Preoperative Medication and Pain Relief." Other special societies that will hold their annual meetings at this time are the Texas Railway Surgeons Association, Texas Neurological Society, Texas Dermatological Society, Texas State Heart Association and the Conference of State and County Health Officers. The Woman's Auxiliary will hold its meeting at the Buccaneer Hotel.

## VIRGINIA

**Venereal Disease Control Officer**—Dr. Francis W. Upshur, Richmond, has been appointed to direct a program for the control of venereal disease in that city. The city council has appropriated \$4,000 and the local chapter of the American Red Cross \$2,000 to finance the work. Dr. Upshur, a graduate of the Medical College of Virginia, was at one time in charge of venereal disease wards in the U. S. Marine Hospital, Boston, and during the World War in charge of the division of venereal disease and diseases of the skin at the Norfolk Naval Hospital.

## WASHINGTON

**Plague Infection in Adams County**—According to *Public Health Reports*, plague infection has been proved in pools of fleas and lice collected from rodents in Adams County as follows: March 7 in a pool of 181 fleas from nineteen *Citellus townsendii* shot two miles east of Lind and in a pool of 103 lice collected from the same group of ground squirrels; March 9 in a pool of 179 fleas collected from twenty-seven *Citellus townsendii*, shot one mile southeast of Lind.

## WEST VIRGINIA

**Society News**—Drs. Randolph L. Anderson and Harry E. Baldock, Charleston, addressed the Logan County Medical Society, Logan, March 9 on "Chronic Arthritis" and "Meningococcus Meningitis" respectively. Dr. Harry T. Schiefelbein, Welch, discussed otitis media at a meeting of the McDowell County Medical Society, Welch, March 9. Dr. William B. Porter, Richmond, Va., addressed the Cabell County Medical Society, Huntington, March 10, on "The Heart and Physiologic Adjustments in Chronic Anemia." At a meeting of the Central West Virginia Medical Society in Sutton, March 19, the speakers were Drs. Theresa O. Snath, Weston, on care and feeding of infants; John E. Cannaday, Charleston, diagnosis and treatment of malignant conditions of the large bowel; and Howard A. Swart, Charleston, new methods of treating fractures. Dr. Louis H. Douglas, Baltimore, addressed the Eastern Panhandle Medical Society in Charles Town, March 9, on maternal mortality. Drs. John Bankhead Banks and Pat A. Tuckwiler, Charleston, addressed the Greenbrier Valley Medical Society, Lewisburg, recently, on "Proctology: Diagnosis and Treatment of Certain Rectal Conditions of Sacral Anesthesia" and "Methods of Diagnosis and Treatment of Allergy" respectively. Dr. Herbert H. Haynes, Clarksburg, addressed the Lewis County Medical Society, Weston, March 8, on carcinoma of the rectum.

## GENERAL

**Unauthorized Magazine Salesman**—The circulation department of *Newsweek* reports that a man named C. O. Reed, who is no longer an authorized representative of the magazine, is continuing to sell subscriptions, especially to physicians. He does not turn in either the money received or the subscriptions. The magazine announces that it will honor any receipts held by physicians on orders they have given to Reed and on which they have not received service if they will send in the receipts and statements of the amount of money paid to the salesman.

**Tenth Pan American Sanitary Conference**—Surgeon General (Ret.) Hugh S. Cumming, director of the Pan American Sanitary Bureau, Washington, D. C., announces that the tenth Pan American Sanitary Conference will be held in Bogota, Colombia, September 4-18. Subjects to be discussed include: organization of a Pan American campaign against venereal disease, social security in its medical and public health aspects, control and prevention of yellow fever, recent achievements in the study of leprosy and the campaign against the disease, campaigns against tuberculosis, diseases produced by viruses and the problem of germ and virus carriers in epidemiology. The last previous conference was in Buenos Aires in 1934.

**Guggenheim Fellowships Awarded**—The fourteenth series of annual fellowship awards of the John Simon Guggenheim Memorial Foundation includes the following:

Dr. Henry N. Harkins, instructor in surgery, University of Chicago, for a study of the causes and nature of traumatic shock.

Clyde E. Keeler, Sc.D., instructor in ophthalmic research, Harvard University Medical School, for collection of material for a book on genetics in relation to medicine.

Dr. Sydney William Britton, professor of physiology, University of Virginia, Department of Medicine, Charlottesville, investigations of the function of the adrenal cortex and the kidney in primitive mammalian forms and in some of the primates.

Alfred George Marshak, Brookline, Mass., investigations of the nature of chromosome division, especially the nature of chromosome structure as revealed by response to treatment with x-rays and with neutrons.

The stipends are about \$2,500 a year.

**Report of Impostor**—A man who said he was Dr. A. B. Morris of Gainesville, Ga., recently appeared in Joplin, Mo., announcing that he planned to locate there as his office and equipment had been destroyed by a storm. He also claimed to have had an automobile accident near Hot Springs National Park, Ark., where he had been in a hospital for some time. He then attempted to borrow money from Joplin citizens to last him until he received money from elsewhere. Inquiry directed to Gainesville and search of the American Medical Directory revealed no person of the name A. B. Morris. The state medical board of Georgia also reported that A. B. Morris was not licensed as a physician in Georgia. According to Joplin authorities, files of the Masonic order record a "Dr. Andrew W. Morris" of Gainesville, Texas, who attempted to obtain money in Syracuse, N. Y., in 1934. At that time he stated that he was a laboratory technician in the Eastman Kodak Company laboratories and showed a medical license from Indiana. He was said to be 70 years old. The man reported from Joplin appeared to be about 60 but intimated that he was 70 or older. He was 5 feet 6 inches tall, weighed about 165 pounds, was clean shaven, had black hair and carried a cane. He spoke English with an accent German and Yiddish and claimed also to know French, Italian, Rumanian and Greek.

**Congress of Physicians in Atlantic City**—The Congress of American Physicians and Surgeons, which meets every five years, will be held at Haddon Hall in Atlantic City, May 3-4, under the presidency of Dr. James B. Herrick, Chicago. There will be two sessions of the congress, one Tuesday evening, May 3, at which Dr. Herrick will deliver an address, and a scientific session Wednesday afternoon. Speakers at this meeting will be:

Drs. Willard B. Soper, New Haven, Conn., and James Burns, New York, New York, Pulmonary Tuberculosis Among Young Adults, particularly Among Those Professionally Exposed to the Disease.  
Dr. William C. Quinby, Boston, Urinary Stone, Some Recent Developments.

Dr. Tracy J. Putnam, Boston, Modern Forms of Treatment of Disease of Nervous System.  
Dr. Dallas B. Phemister, Chicago, Variation in the Cholesterol Content and Calcium Carbonate Content of Gallstones.

Meeting as a part of the congress will be several special societies including the following:

The American Surgical Association will meet at the Traymore, May 2-4. A feature of its program will be a symposium on treatment of infections presented by Dr. John S. Lockwood, Philadelphia; Champ Lyons and Richard H. White, Philadelphia.

Boston, Alexander Randall and Patrick Boland Hughes, Philadelphia, Perrin H Long and Eleanor A Bliss, Sc D, Baltimore

The American Neurological Association will meet at the Ambassador May 2-4 Dr Charles A Elsberg, New York, president of the association, will give the Charles K. Mills Memorial Lecture Monday evening May 2 on 'Cerebral Activity Including Conscious Sensation as a Physicochemical Process'

The Association of American Physicians will hold its fifty-third annual meeting at Chalfonte-Haddon Hall May 3-5

The fourteenth annual meeting of the American Association of the History of Medicine at the Hotel Chalfonte, May 2, will commemorate the two hundredth anniversary of the death of Herman Boerhaave, "supreme clinician of the eighteenth century"

The sixtieth annual congress of the American Laryngological Association will be held at the Marlborough Blenheim, May 2-4

The American Association of Pathologists and Bacteriologists will convene for its thirty-eighth annual session at the Chalfonte Haddon Hall May 3-4

A symposium on display methods in medical museums will be a feature of the thirty-first annual meeting of the International Association of Medical Museums at the Chalfonte-Haddon Hall May 2 The American Association for Cancer Research will hold its thirty-first annual session at the Chalfonte Haddon Hall May 2

## CANADA

**Personal**—Dr Seraphin Boucher has retired as director of the department of health of Montreal after twenty-five years' service He has been succeeded by Dr Adelard Groulx, Montreal—Dr Gregoire F Amyot Vancouver assistant provincial health officer of British Columbia, has received leave of absence for two years to undertake an extensive survey of state health administration in association with Carl Buck Dr P H, field director of the American Public Health Association

**University News**—Elmer V McCollum Ph D, Baltimore recently delivered the Gordon Bell Memorial Lecture at the University of Manitoba Winnipeg at a special convocation The university conferred on Dr McCollum the honorary degree of doctor of laws honoris causa—High voltage x-ray therapy apparatus has been installed at the Winnipeg General Hospital in a new building especially constructed for this and the other x ray equipment already in the hospital The new equipment was made possible by a gift from Mr John A Forlong as a memorial to his wife

## CORRECTION

**Nonoperative Management of Remaining Common Duct Stones**—In the paper with the foregoing title by Best and Hicken in THE JOURNAL, April 16, the authors desire to add to the legend of figure 1 that A represents the control period, B the period following administration of dehydrocholic acid by mouth for several days and C the period following the intravenous injection of 10 cc of a 20 per cent solution of sodium dehydrocholate

## Government Services

### Examination for the Army Medical Corps

The War Department has announced an examination for the purpose of qualifying candidates for appointment as first lieutenants in the Medical Corps Regular Army, to fill vacancies occurring during the fiscal year 1939 The examination will be conducted July 18-22 both dates inclusive by boards convened throughout the United States It will consist of a physical examination a written examination in professional subjects and a determination of the candidates' adaptability for military service Licentiates of the National Board of Medical Examiners may be exempted from the written professional examination The examination is open to all male graduates of acceptable medical schools who have completed one year's internship in an approved hospital and who will not be over 32 years of age at the time it will be possible to tender a commission Full information and application blanks will be furnished on request addressed to the Adjutant General War Department Washington D C Applications will not be considered after July 2

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

April 2, 1938

### A New System of Nerves

Sir Thomas Lewis has reported from the Clinical Research Unit of University College Hospital to the Medical Research Council observations on cutaneous hyperalgesia that have led to the discovery of a new system of nerves It has been observed that a widespread and lasting area of hyperalgesia appears in many subjects around a point of faradic stimulation or tiny crush of the skin It has been shown that this is independent of the central nervous system and arises out of changes in the region of the injury and through a local nerve mechanism Impulses traveling through these local nerves set up a process in the surrounding skin of a relatively stable kind and one which is independent of the original injury Similar hyperalgesia may be produced also by stimulating cutaneous nerve trunks, this effect appearing in the area of cutaneous distribution of the nerve is not prevented by previously blocking the nerve proximal to the point stimulated but is prevented by a block distal to the point If the mucous membrane of the maxillary antrum is stimulated hyperalgesia develops over the whole area supplied by the maxillary division of the fifth nerve, reproducing the superficial tenderness that often follows antral catarrh By stimulating the digital nerve to the radial side of the little finger, similar hyperalgesia can be produced in the whole area of skin supplied by the ulnar nerve All the instances of hyperalgesia described are produced through the same local nerves and the same effector mechanism Evidence has been brought forward to show that the nerves concerned are arranged as arborizations of axons in the skin and that they belong neither to the sensory nor to the sympathetic system

The newly discovered system of nerves has been named "nocifensor" because they appear to be specially concerned in local reactions of defense, exemplified by the hyperalgesia and probably also by the well known vascular flare which surrounds injuries of the skin The observations illustrate how responses that are part and parcel of the inflammatory reaction may be set up distally in the skin through nerve channels The effects of asphyxia and of cocaine on the hyperalgesic reaction confirm the view that the fibers concerned belong to a special system and not to the sensory system

With Dr Proclin Sir Thomas Lewis has completed a research on sensory response to painful stimuli A needle prick or a transient application of heat awakens from the finger a double pain response The first response travels in fibers of fast conduction and is readily obstructed by local asphyxia the second travels in fibers of slow conduction and is readily obstructed by using cocaine The interval between the two responses increases as the stimulus is moved peripherally and becomes large when a stimulus is applied to the toe The delay of the second response is in the somatic nerves and not in the spinal cord These observations fall into line with those previously made by Gasser, who showed that afferent impulses pass from the periphery in nerves of very different conduction rates They are of particular interest in showing that pain impulses pass by both fast and slow conducting fibers They are relevant to the delay of prick response in tabes dorsalis and preliminary observation by Dr Proclin suggest that in this disease, slow conducting fibers are relatively unaffected

### Thrombosis of Peripheral Veins a Sign of Visceral Cancer

In the *Birmingham Medical Review* Dr A P Thomson has called attention to a clinical fact first described by Trouessart in 1862 but almost completely overlooked in modern practice—

spontaneous thrombosis in both the upper and the lower limbs as a valuable sign in the diagnosis of visceral cancer. Trousseau pointed out its value in cases of cancer of the stomach not accessible to the usual methods of investigation. Dr Thomson reports three cases. A healthy married woman, in the early forties, after a few weeks of ill health had thrombosis of a vein of the right leg. There was slight edema, which subsided under rest in bed, but almost immediately after she was allowed to get up she had a similar thrombosis in the other leg. A month later there was a similar thrombosis in the right thigh. Her general condition was good and physical examination was negative. As she had lost appetite and a little weight, an x-ray examination of the alimentary canal was made and was reported negative. Although there was no fever, Dr Thomson suggested the possibility of thrombophlebitis migrans and search was made for foci of infection. Several teeth were condemned and removed, the tonsils were removed, and the sinuses were washed. A vaccine was prepared from the root of a tooth. But the patient continued to deteriorate and had several more attacks and one attack of pleurisy with hemoptysis, attributed to thrombosis of the pulmonary veins. Fourteen months after the original thrombosis she died with obvious evidence of malignant disease of the liver. The site of the primary cancer was never determined.

A man in the early fifties, admitted to the General Hospital, Birmingham, in 1936, was slightly anemic, had lost appetite for four months and had vague abdominal distress after meals. Before admission he had two attacks of thrombosis in the veins of the legs. X-ray examination showed a deformity of the cardiac end of the stomach. Further attacks of venous thrombosis occurred, and he died a few months later with evidence of metastases in the liver.

A man of 52, a total abstainer, who had never had any illness, began to complain of ill health. His appetite failed and he lost a few pounds. Later he had vague discomfort in the right iliac fossa and afterward in the right hypochondrium. X-ray examination was negative. In July, from six to eight weeks after he first consulted his doctor, he had a stab of pain in the right calf. There was a patch of phlebitis. August 26 he had pleurisy at the right base. Though physical examination was completely negative when he was seen a few days later by Dr Thomson, visceral cancer was suggested in view of the spontaneous thrombosis and cachexia. Later another patch of phlebitis occurred, this time in the left leg. Physical examination was still negative, but frequent attacks of venous thrombosis of the leg followed. September 27 the liver was hard. Further attacks of thrombosis occurred and on October 25 laparotomy was performed and revealed carcinoma of the tail of the pancreas with metastases in the liver.

The pathology of the thrombosis remains obscure. Trousseau showed that it was not due to pressure. It does not seem to be due to infection as in none of these cases was it associated with any fever. There was no evidence of implantation of malignant cells in the wall of the vein. Dr Thomson suggests that the most probable cause is some chemical change in the blood following the development of cancer.

### The Prevention of Explosions in Operating Rooms

The National Physical Laboratory has investigated the question of explosions in operating rooms through the accidental formation of electric sparks, which has been suggested as an explanation of some of these accidents. The laboratory has found that it may be possible by the movements of blankets and other objects to produce sparks capable of igniting anesthetic vapors. As a result of the investigation recommendations have been made which should minimize the risk. These include the provision of earthing chains trailing from operating tables on to a semiconducting floor and the use of the partially conducting rubber which is now available.

### The Protection of X-Ray and Radium Workers

To prevent injuries to x-ray and radium workers the British X-Ray and Radium Protection Committee was formed in 1931 as the result of cooperative action between the Royal Society of Medicine, the Röntgen Society, the British Association for the Advancement of Radiology and Physiotherapy, the Institute of Physics, the Radium Institute and the National Physical Laboratory. The committee has issued from time to time recommendations, of which the fifth has just been published. The problem of protection for x-ray workers has been eased by the introduction of the self-protected tube and more recently by the shock-proof tube equipment. The available evidence suggests that under satisfactory working conditions a person in normal health can tolerate with impunity exposure to x-rays and radium gamma rays of about one roentgen per week. The following protective measures are recommended.

#### WORKING HOURS AND OTHER CONDITIONS

Not more than seven working hours a day. Whole-time workers should not be called on for other hospital service. No more than five working days a week, the off days to be spent as much as possible outdoors. Not less than four weeks holiday annually, preferably consecutive. No person to be employed whose blood or general health is unsatisfactory. The amount of radiation received by operators should be systematically checked to ensure that the tolerance dose is not exceeded. Before beginning work the normal leukocyte level should be found by making three total and differential counts in the afternoon. If no total count exceeds 6,000 and no lymphocyte count reaches 1,200 the applicant should not be accepted. Periodic counts should be made every six months in the case of the x-ray worker and every three months in the case of the radium worker. If at any time a decided and sustained drop in total leukocyte or total lymphocyte count is found, work should be stopped and treatment undertaken.

#### GENERAL RECOMMENDATIONS

X-ray and radium departments should not be below the ground level. Damp rooms should be avoided. All rooms, including photographic dark rooms, should be provided with windows affording good lighting and ventilation. They should preferably be decorated in light colors. A working temperature of 18 to 21°C (64.4 to 69.8°F) is desirable in x-ray rooms, which should be large enough for convenient layout of equipment. X-ray generating apparatus employing mechanical rectifiers should preferably be in a separate room from the x-ray tube. An operator should on no account expose himself to direct x-ray beams (valve tubes used improperly may produce x-rays). The tube should be self-protected or surrounded with protective material. In diagnostic work with other than completely protected tubes, the operator should be protected from stray radiation by a screen of minimum lead equivalent of 1 mm. All fluoroscopic examinations should be conducted as rapidly as possible with minimum intensities and apertures, and all collimators and stands should be provided with arrangements for protecting the operator against scattered radiation from the patient. Protective gloves should have a value not less than 0.33 mm of lead and aprons of 0.5 mm. In treatment the operator should be outside the x-ray room behind a protective wall.

#### PROTECTION FROM RADIUM

To protect the hands, radium should be manipulated with long-handled forceps. All manipulations should be as far as possible. The radium safe should be as distant as practicable from the personnel and provided with individually protected drawers. To protect the body from the gamma rays, a lead handling a screen of not less than 25 cm of lead should be used. The risks in using large quantities of radium in therapy may be largely obviated by some system of control in which the radium is introduced into the container in which the latter has been adjusted on the patient.

## PARIS

(From Our Regular Correspondent)

April 2, 1938

Protest Against Sale of Sulfanilamide  
Over the Counter

A letter to the editor of the *Siecle medical* by Prof Jules Janet, an authority on gonorrhea, appears in the April 1 issue of that journal. The indiscriminate sale by druggists directly to patients of sulfanilamide and similar preparations ought to be stopped. Some experiences in his practice were cited by Professor Janet to show that these newer drugs should be employed only under medical supervision. He had prescribed from six to eight tablets each containing 0.5 Gm ( $7\frac{1}{2}$  grains) in nine cases. This was the dose recommended by the pharmaceutical houses. In these nine cases of gonorrhea he had observed a hematuria of renal origin, a generalized icterus and a multiple neuritis of the arm and thorax, the last named of three days' duration. Even when the dose was reduced to four tablets a day, a hematuria of renal origin was noted in the same patient who presented this symptom with the larger dose. The dose was then reduced to two tablets a day in three cases. One of the three patients, a young man with an anterior urethritis, had been given local treatment (permanganate irrigations) and two tablets of sulfanilamide (0.5 Gm) daily. About thirty-six hours later he appeared pale and complained of a headache. The next day, the lips and nails were cyanotic. All these symptoms followed the use of only four tablets a day, or a total of 2 Gm of the drug, and disappeared as soon as its use was discontinued.

## Present Status of Chemotherapy of Gonorrhea

A meeting was held at the request of the minister of public health March 21 to evaluate the use of sulfanilamide and similar preparations in the treatment of gonorrhea. A report of this meeting by Prof Constantin Levaditi of the Institut Pasteur appeared in the April 1 issue of the *Siecle medical*. The most prominent venereologists of France took part in the discussion. The hope of a specific remedy to combat gonorrhea has not been fulfilled. The risk of serious complications following the use of the newer preparations is not to be overlooked. To have an effect on the gonococcus, the drugs must be given in such large doses as to risk the occurrence of serious systemic complications. The result is that, in order to avoid such sequelae the drugs must be given in such relatively small doses as to lose all their action on the gonococcus in the majority of cases. Most of those who took part in the discussion were of the opinion that, confronted with the alternative of giving sufficiently large doses to have an actual effect on the gonococcus or to fall back on the older methods of local treatment, the latter would still remain the method of choice. Chemotherapy must be regarded as of value when associated with local treatment but should not be depended on as the sole method. As such an adjuvant treatment, the newer preparations were of especial value in gonorrhea in the female and in epididymitis, provided the drugs were given in not too large doses and only under constant medical supervision. No matter which of the newer specific drugs were used there had been a recurrence in 30 per cent of the cases.

To avoid the use of these newer drugs without daily medical supervision, it was the sentiment of the meeting that they should be placed in the narcotics list, i. e., to be sold by druggists only when prescribed by physicians.

## Agranulocytosis During Attack of Cholecystitis

A case of agranulocytosis during an attack of cholecystitis was reported by Dr Pasteur Vallery-Radot and his associates at the January 28 meeting of the Societe medicale des hopitaux. A woman aged 26 was admitted May 2 1935 because of a severe ulceromembranous pharyngitis. Smears revealed the presence of numerous spirilla, and only staphylococci were found

in cultures. There was marked tenderness over the gallbladder region. The blood examination showed 2,000 leukocytes per cubic millimeter associated with absence of polymorphonuclear leukocytes. There was a history of recurrent attacks of cholecystitis. The temperature was 104 F and the patient appeared extremely ill. The number of leukocytes dropped to 1,200 per cubic millimeter and rose to nearly 12,000 with 68 per cent polymorphonuclears only when the membranes in the buccopharyngeal region began to disappear, about two weeks after admission to the hospital. Similar cases of agranulocytosis during an attack of cholecystitis have been reported by Peritz and also by Sabrazes and his associates.

"Atrophy" of Liver Following Injection  
of Antitetanus Serum

At the January 28 meeting of the Societe medicale des hopitaux Dr Jacques Caroli reported a case of severe icterus and acute hepatic atrophy following prophylactic injection of 10 cc of antitetanus serum, ten days before admission to the hospital. The chief prodromal symptom was an intense headache, which receded as soon as the icterus became manifest. The icterus, which at first gave the impression of being of a mild catarrhal type, was accompanied on the eighth day by bleeding from the gums, severe epigastric pain and diarrhea. The coagulation time was twenty-one minutes, but the bleeding time was normal. The stools contained blood and traces of bilirubin. Cholecystostomy was followed by a marked improvement of the clinical picture. Biopsy specimens of the liver tissue taken at the time of operation revealed a condition which the author terms "acute gray atrophy." The parenchyma failed to show any trace of bile pigments and red blood cells, a condition which could be best explained as being the result of anaphylactic edema complicated by necrosis of the central portion of the lobules.

## Basal Metabolism in Children with Goiter

A careful investigation on the basal metabolism in children with goiter was presented in a paper by Drs Mouriquand and Enselme at the March 15 meeting of the Academie de medecine. In fifty children with goiter, of whom forty-three were girls the metabolism was normal in seventeen, increased in twenty and decreased in thirteen. Of those showing increased metabolism, five had a basal metabolism of less than plus 10 probably of emotional origin, and nine of less than plus 20, which might be ascribed to hypersympathicotomia. In six children the metabolism rate varied from plus 21 to plus 70. In thirteen of the fifty children there was a lowered rate varying from minus 10 to minus 30. These children presented the classic signs of hypothyroidism in the form of pallor, retarded intellect and puffiness of the face.

## BERLIN

(From Our Regular Correspondent)

March 7, 1938

## Mortality in the Berlin Hospitals

Dr Conti, Berlin municipal medical counselor, in the *Aerzteblatt für Berlin* has pointed out that the number of deaths in Berlin's municipal hospitals is disproportionately great. Investigation has proved that doctors are hospitalizing a mounting number of incurably ill patients. This trend may be explained in part as due to the aging of the population, to bad living conditions and to the fact that since the abolition of unemployment a sick person's relatives have no time to take care of him. Moreover it cannot be denied that hospitalization may be a means of evading personal responsibility, in fact, this motivation is often obvious. This trend exerts a deleterious influence on all hospital patients and the expenses entailed by the care of so many hopeless cases makes hospitalization more costly for patients whose prospects for cure are favorable. Dr Conti feels that a practitioner, whenever

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possible, should keep the patient at home if no favorable result is to be expected from hospitalization

### Tuberculosis in the Schools

Tuberculosis in the schools was recently the subject of an article by Dr Denker and Dr Seifert in the *Reichs-Gesundheitsblatt*. Legislation designed to mitigate the danger of infection among teachers and pupils has been enacted in Germany. By the terms of one such ordinance a teacher or pupil afflicted with infectious tuberculosis is forbidden to enter a schoolroom. Since 1934 a special law has been in force in Prussia, by the terms of which all cases of tuberculosis, fatal or otherwise, must be reported to the authorities. This applies to the disease in all its forms. Even a well founded suspicion that a person is afflicted with tuberculosis of the skin should be communicated to health officials. All persons preparing themselves for teaching, candidates for teaching positions and young teachers must submit an official medical certificate of good health wherein the condition of the lungs must have been verified by a roentgen examination. Legislation subsequently enacted contains provisions for special observation of tuberculous children.

Control of tuberculosis is an official duty of public health officers, particularly the detection of cases. Group examinations have become a part of the school medical service. The search for tuberculosis in school children is carried on with the aid of the tuberculin test. If a certain class has an exceptionally high incidence of positive reactions it is assumed that a source of infection exists within the class, and both pupils and teacher are submitted to roentgen examination. Children with positive tuberculin reactions have tended to decrease in number in the course of the years. Pirquet in his time elicited positive reactions in about 100 per cent of school children in Vienna. Today the proportion is 40 per cent or less. Now if more than 40 per cent of the children in a certain class show positive reactions the teacher probably is actively tuberculous. Children whose reactions are positive are next thoroughly examined clinically to ascertain whether active tuberculosis is present. The National Antituberculosis Commission has formulated the following classifications of conditions presented by children whose tuberculin reactions are positive: (1) infectious tuberculosis requiring treatment, (2) noninfectious tuberculosis requiring treatment, (3) tuberculosis requiring observation, (4) inactive tuberculosis, observation not required. Observation has taught that mortality from tuberculosis is higher among children who previously have exhibited positive reactions to the tuberculin test than among children whose reactions were previously negative.

### A Study of Spermatozoa

Stiasy and Generales of Berlin contributed to the annual convention of the German Genetic Society a study of the spermatozoa in healthy and in congenitally diseased men. The principal observation was the lack of uniform spermatozoa. The ratio of normal to modified spermatozoa varies, the average ratio being 81:19 in a healthy, procreative man and 37:15:62:85 in a man with hereditary disease. Among schizophrenic men, for example, the ratio is 46:2:53:8, among congenitally feebleminded men 38:2:61:8, among chronic alcohol addicts 24:9:75:1. According to this report, which will require further verification, two questions remain unanswered. To what degree is the spermatozoal picture influenced by the actual genotype? and Is there any correspondence between the spermatozoal picture and particular hereditary diseases?

### The Behavior of Mandelic Acid

Prof F Wrede physiologic chemist of Kiel has investigated the behavior of mandelic acid within the human and animal organisms. Wrede observed that only about 70 per cent of racemic mandelic acid was eliminated in the urine. Recalling the work done by O Neubauer H Fischer Dudley

and Dakin, Wrede sought to determine whether benzoyl-formic acid is capable of producing mandelic acid while in transit through the organism. No racemic mandelic acid could be detected in the urine of human subjects or of dogs which had ingested benzoyl-formic acid. It is obvious, however, that man and dog react differently to this substance.

Wrede's observations are at variance with those of O Neubauer, who on the basis of analytic studies of phenylacetic acid had established two cardinal principles that characterize oxidative deamination and that of optically active reduction. A more critical attitude must now be brought to bear on these principles.

### Tuberculosis in Germany

The mortality from tuberculosis in Germany is gradually decreasing. Figures recently issued by the National Health Bureau show that the rate from 1892 to 1894 was still 25 deaths of tuberculosis per 10,000 of population, in 1934 the corresponding rate was only 7.2. Complete figures are not yet available for 1935. Variations in the mortality from tuberculosis in urban as contrasted with rural regions are not great. The incidence of tuberculous meningitis, a disease of childhood is influenced by the size of the child population of a certain region. The larger cities belong among the communities reporting higher mortality from tuberculosis of the respiratory system. This is due in part to the migration of large numbers of persons of the intermediate age groups to the cities. In 1934 the mortality from tuberculosis in cities of more than 100,000 was 7.2 per 10,000 of population, in smaller communities the rate was generally less, dwindling to a minimal 6.0 in towns of 15,000 population. The average rate for all these urban communities was 6.9. No corresponding statistics are available for the distinctly rural regions. Since, however, the mortality from tuberculosis in the entire reich was 7.2 per 10,000 of population, namely, greater than the average of all urban communities, it may be inferred that the mortality is higher in the rural than in the urban communities.

The mortality from tuberculosis is higher among the male than among the female population. In 1934 the rate for the male sex was 7.8, for the female sex 6.6 per 10,000. The male death rate was thus 118 per cent that of the female. This excessive male susceptibility to fatal tuberculosis was not present at all age levels. Between the ages of 5 and 30 years the death rate was greater among females than among males. Whereas the mortality of male nurslings was 123 per cent that of female nurslings, among persons between the ages of 15 and 30 the male mortality from tuberculosis was only 83 per cent of the female mortality. For men of the age group 30-45, however, the death rate was 129 per cent that of women in the same group. Among persons between the ages of 45 and 60, nearly twice as many men as women died of tuberculosis. The highest male mortality from the disease was among men from 60 to 70 (12.5 per 10,000), the highest corresponding female rate was in young women aged from 15 to 30 (9.0 per 10,000). Nearly 40 per cent of deaths of women in the latter age group were caused by tuberculosis.

### Tularemia in Germany

According to a report issued by the National Health Bureau the first investigations of tularemia among game animals was undertaken during the hunting season of 1930-1931. Simultaneously investigations were begun to discover possible unrecognized cases in man. In March 1931 a case of tularemia was reported in an employee of an institute of venery who apparently had become infected in 1928 while dissecting game animals. This case and a second subsequently reported were both of the ulceroglandular type, which is acquired only by direct contact with diseased animals. The first case (1936) of tularemia in which the diagnosis was confirmed by culture of the causative agent was of the oculoglandular type. The contagion had been transmitted by insects. Occult enzootic foci of contagion seem to be present in small game but autogenous tularemia is not

domesticated hares, rabbits and so on was not observed. In the German reich at present tularemia is not serious, but this condition could be quickly changed by the spread of contagion from nearby Austria and Czechoslovakia. Studies made in collaboration with the Swedish Institute of Bacteriology at Stockholm have demonstrated that the serobacteriologic identity of the pathogenic organisms may be differentiated on the basis of geographic origin, as American, Swedish, Turkish, Czech or German. In Germany only a few cases of tularemia have been observed. In view of the infectiousness, the same regulations which govern bubonic plague research have been made applicable to tularemia research in German laboratories. To prevent entrance of tularemia from abroad, the importation into or transit through the reich of both living and dead hares and rabbits was prohibited if the animals came from Czechoslovakia, Austria, Hungary, Yugoslavia, Rumania, Bulgaria, Albania, Greece or Turkey. But after geographic distribution of the contagion became better known the bar was modified. It now applies only to Czechoslovakia, Turkey and Austria, as tularemia was rife in these countries during 1936-1937.

AUSTRALIA

(From Our Regular Correspondent)

March 15, 1938

Medical Research Council

The third session of the National Health and Medical Research Council was held in Sydney last November.

MEDICAL RESEARCH IN AUSTRALIA

The medical research endowment act, passed by the commonwealth government in July 1937, implements the recommendations of the Council for an annual endowment of medical research and, as a first contribution, the sum of £30,000 has been placed on the estimates for 1937. The Medical Research Council has granted assistance to university departments and such institutions as the Walter and Eliza Hall, the Kanematsu and Kolling institutes, and also to some ten young research workers who propose to open up new fields of work, and has made possible the initiation of concerted schemes of research on an organized and extensive scale, into the subjects of puerperal morbidity, streptococci, poliomyelitis, rheumatism and tuberculosis. In addition, a whole field of dental research will be explored and constructive work established. The council considered that it would be necessary to have the assistance of special committees, expert and representative in constitution, with reference to various aspects of the research scheme that has now been initiated. Four such committees were appointed with special reference to tropical physiology and hygiene, dental research, obstetric research and tuberculosis.

POLIOMYELITIS

Close attention was given to the present situation resulting from the epidemic of poliomyelitis in Victoria, and the public apprehension which has been caused not only in Victoria but in other states. The council reviewed epidemiologic aspects of this disease and the administrative control, and made certain recommendations concerning research. The council recommended the expenditure up to £4,000 for investigation into certain streptococci which have been found consistently in the throats of patients with poliomyelitis during this epidemic and also for certain serologic investigations which will require expensive monkey experiments.

Treatment of Lepers in Australia

Criticism of the treatment of lepers in Australia was voiced recently by Dr E. H. Molesworth, lecturer on skin diseases at Sydney University, a member of the International Leprosy Association and author of many publications on leprosy and other diseases. He declares that in Australia the attitude toward leprosy is medieval. The locking up of white lepers to make virtual prisoners of them is futile and has no justification. He

advocates the abolition of segregation and the granting to the leper a freedom of movement among his fellows. Lepers should be treated as individuals with the right to live in their own homes and the right to have hospital treatment like any other sick persons. He says that so long as the affected person has his own room and keeps away from children (who have greater susceptibility to the disease) there is not the slightest risk of infection. The public, while exposing itself to infection with tuberculosis and other dangerous diseases, still adopts a primitive attitude toward leprosy, with which the danger of infection is slight. In European cities, lepers are not segregated but are allowed complete freedom. There are a number of free lepers receiving treatment in London, and more than 150 living in Paris. In the whole of Australia the number of white lepers is about sixty. Dr Molesworth said that the greatest danger of segregation was that if a person discovered that he had contracted leprosy he immediately did his best to conceal the fact, because if he reported to the authorities he would be taken immediately to a lazaretto, there to live as a prisoner, forgotten by the world. The result was that most of the cases reported were far advanced. In such advanced cases treatment cannot be expected to give very beneficial results.

University Criticized

Prof. F. Wood Jones, who is retiring from the chair of anatomy at the Melbourne University to take an appointment in England, delivered some trenchant criticism of university affairs in a valedictory lecture at the Melbourne Town Hall. Professor Wood Jones said that the real university is one that prepares for intellectual life all those who are sufficiently intelligent to comprehend its meaning. Ostensibly Melbourne University was founded to be the "nursery of great men, of those on whom, whatever be our form of government, our true permanent welfare depends." But since the establishment of the Melbourne University sectarian influences have been at work for the foundation of residential colleges. In permitting sectarian religion to be recognized at all within the university Melbourne has handicapped itself in its attempt to cater for the intellectual life of the community. Certainly it would have been difficult to raise financial assistance from nonsectarian sources, but, once admitted, sectarian influences are extremely difficult to eradicate and are one of the most serious defects in the intellectual life of Australia. Professor Wood Jones said that the possibilities of free and stimulating discussion between teacher and student were practically nonexistent in most of the faculties of Melbourne University. Australia should aim at securing men of character and ability to fill university posts, and when they were secured there should be a much greater freedom of intercourse between staff and students than could prevail under the present conditions of understaffing. A university should be regarded as providing a mental clinic for young people rather than as a machine which enabled them in a mechanical way, to earn a living.

Marriages

- MORTIMER D. BURGER to Miss Lillian Katherine Solomon, both of Mount Vernon, N. Y. January 16.
- GLENN DE VREE CARLSON to Miss Lorraine Frances Manske, both of Dallas, Texas. Dec. 6, 1937.
- WILLIAM BENJAMIN DAVIS, College Park, Ga., to Miss Sara Astin of Palmetto in February.
- HENRY Y. HARPER to Miss Sara Eliza Vandiver, both of Anderson, S. C. February 19.
- MAX K. HIRSCHFELDER, Chicago, to Miss Edith Hirsch of Winnetka, Ill. in February.
- JOSEPH A. MACI, Canton, Ohio, to Miss Una Sanders of North Canton. February 14.
- FRANK M. KRICHBAUM to Miss Jane Smith, both of Akron, Ohio. March 6.

## Deaths

**Charles O Day** ♂ Boston, Harvard University Medical School, Boston, 1907, member of the New England Otolological and Laryngological Society, fellow of the American College of Surgeons, consulting surgeon to the Boston Eye and Ear Infirmary, the Boston Lying-in Hospital and the Florence Crittenton Home and Hospital, Boston, and the Brooks Hospital, Brookline, aged 58, died February 23, in the Baker Memorial Massachusetts General Hospital of pneumonia

**Daniel A MacLachlan**, Detroit, University of Michigan Homeopathic Medical School, Ann Arbor, 1879, fellow of the American College of Surgeons, professor of ophthalmology and otology at his alma mater, 1889-1895, dean and professor of ophthalmology and otology, Detroit Homeopathic College, 1889-1912, formerly member of the state board of medical examiners, on the staff of the Grace Hospital, aged 85, died, February 8, at Dunedin, Fla., of cardiovascular disease

**Charles Arthur Wallbillich**, New Orleans, Tulane University of Louisiana Medical Department, New Orleans, 1905, fellow of the American College of Surgeons, member of the Louisiana State Medical Society, at one time professor of clinical gynecology and obstetrics at the Tulane University Graduate School of Medicine, on the staff of the Charity Hospital, aged 57, died, February 10, of cerebral hemorrhage

**James L B Gilmore**, Holly Hill, S C, Medical College of the State of South Carolina, Charleston, 1881, member of the South Carolina Medical Association, past president of the Orangeburg County Medical Society, also a pharmacist, for many years postmaster of Holly Hill and trustee of the schools, aged 79, died, February 19, in the Tri-County Hospital, Orangeburg, of carcinoma of the prostate

**John Vincent Littig** ♂ Major, U S Army, retired, Boston, Rush Medical College, Chicago, 1901, fellow of the American College of Surgeons, served during the World War, was appointed a major in the medical corps in 1920 and retired in 1932 for disability in line of duty, aged 61, died, February 2, in the Walter Reed General Hospital, Washington, D C

**Lee Chamberlain Stillings**, Bellows Falls, Vt, University of Vermont College of Medicine, Burlington, 1893, member of the Vermont State Medical Society, past president of the Windham County Medical Society, served during the World War, on the staff of the Rockingham General Hospital, aged 68, died, February 21, in Knoxville, Tenn., of pneumonia

**Guy Forsyth Cleghorn**, Mineola, N Y Albany (N Y) Medical College, 1904, member of the Medical Society of the State of New York, past president of the Nassau County Medical Society, on the staff of the Nassau Hospital, health officer, for many years county jail physician, aged 59, died, February 6, of cerebral thrombosis and hypertension

**Cornelius John Carr**, Buffalo, Niagara University Medical Department, Buffalo, 1896, member of the Medical Society of the State of New York, on the staffs of the Emergency Hospital, St Mary's Infant Asylum and Maternity Hospital and the Millard Fillmore Hospital, aged 70 died, February 12, of cerebral hemorrhage and arteriosclerosis

**Frederick Sefton**, Auburn, N Y, Yale College Medical Department, New Haven, 1884, member of the Medical Society of the State of New York and the American Psychiatric Association, bank president, formerly member of the board of education, on the staff of the Auburn City Hospital, aged 78, died, February 3, of arteriosclerosis

**Howard Coleman Scott**, Sweetwater Texas, University of Tennessee Medical Department, Nashville, 1900, member of the Tennessee State Medical Association past president of the Nolan-Fisher Counties Medical Society, aged 76 on the staff of the Sweetwater Hospital, where he died, February 11 of complications following burns

**Richard A Poole**, Indianapolis, Medical College of Indiana Indianapolis, 1905, member of the Indiana State Medical Association, at one time county coroner formerly superintendent of the City Hospital, aged 58, died, February 24 in St Vincent's Hospital of uremia as the result of an injury received in a fall five years previously

**Joseph E Moser** ♂ Bloomington, Ind State College of Physicians and Surgeons, Indianapolis 1907, served during the World War, past president of the Monroe County Medical Society, at one time secretary of the county board of health on the staff of the Bloomington Hospital aged 58 died February 1, of heart disease

**John Nicholas Ryan** ♂ Passaic, N J, Long Island College Hospital, Brooklyn, 1899, served during the World War as one time member of the board of education, city health officer, superintendent of the Passaic Municipal Hospital, aged 61 on the staff of St Mary's Hospital, where he died, February 1 of duodenal ulcer

**Lawrence Swante Bernhard Lundwall**, Gardner, Mass, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905, member of the Massachusetts Medical Society, formerly city physician, on the staff of the Henry Heywood Memorial Hospital, aged 61, died, February 11

**Edward Treen Hare**, Holyoke, Mass, University of Vermont College of Medicine, Burlington, 1929, member of the Massachusetts Medical Society, aged 35, on the staffs of the Shriners' Hospital for Crippled Children and the Wesson Memorial Hospital, Springfield, where he died, February 17, of spinal meningitis

**Robert Dayton Luster** ♂ Granite City, Ill, St Louis University School of Medicine, 1903, past president of the Madison County Medical Society, served during the World War formerly member of the state board of health, aged 58, on the staff of St Elizabeth's Hospital, where he died, February 11 of ileitis

**James Martin Miller** ♂ Major, M C, U S Army, Ancon Canal Zone, University of Pennsylvania Department of Medicine, Philadelphia, 1917, served during the World War, entered the medical corps of the U S Army in 1920 and was promoted to major in 1930, aged 47, died February 21, in the Gorgas Hospital

**Elmer E Morrison** ♂ Great Bend, Kan, Barnes Medical College, St Louis, 1896, past president of the Barton County Medical Society, fellow of the American College of Surgeons, for many years member of the school board, aged 69, on the staff of St Rose Hospital, where he died, January 18

**Zachary Amerigo Mollica** ♂ Belmont, Mass Medical College of the State of South Carolina, Charleston 1912, superintendent of the Harley Private Hospital, served during the World War, aged 49, died, February 1, of coronary thrombosis while at sea aboard the S S *New York*

**George Stillman Loveren** ♂ Santa Barbara Calif, Jefferson Medical College of Philadelphia, 1907, fellow of the American College of Surgeons, on the staffs of the Santa Barbara General, Santa Barbara Cottage and St Francis hospitals, aged 53, died, February 3, of cerebral thrombosis

**Irving Lee Walker**, Cold Water, N Y, Columbia University College of Physicians and Surgeons, New York 1901, at various times on the staffs of the Binghamton (N Y) Hospital, Central Islip (N Y) Hospital and the Rochester (N Y) State Hospital, aged 65, died, February 18

**Howard Arthur Bassett**, Lowville, N Y, College of Physicians and Surgeons, Boston, 1905, member of the Medical Society of the State of New York, served during the World War, aged 62 died February 12 of coronary thrombosis, diabetes mellitus and cirrhosis of the liver

**Edgar J March** ♂ Canton, Ohio, College of Physicians and Surgeons Baltimore 1884, member of the House of Delegates of the American Medical Association, 1911-1912, for many years president of the staff of the Aultman Hospital, aged 80 died February 20, of coronary thrombosis

**Thomas Sheridan McCabe**, Newark, N J, College of Physicians and Surgeons Baltimore, 1902, member of the Medical Society of New Jersey, served during the World War on the staff of St James Hospital, aged 61, died, February 2 of coronary thrombosis and nephritis

**Charles McKinley**, Strong Kan, University of Kansas School of Medicine, Kansas City, 1906, mayor, member of the school board at one time physician at the state penitentiary Lansing, aged 64, died, February 15, in St Mary's Hospital Emporia of carcinoma of the liver

**John Norton Thorpe** ♂ Chicago, College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1904, served during the World War, aged 61 on the staff of the Evangelical Hospital where he died February 8 of carcinoma of the stomach

**Levi Brimmer Salmans**, Guaymas Mexico, Kentucky School of Medicine Louisville 1891, a retired medical missionary, formerly superintendent of the Good Samaritan Hospital aged 82 died January 29 in the Huntington Hospital Pasadena, Calif

**William Edwin Bradley** ♂ Estherville Iowa, Rush Medical College Chicago 1892, past president and secretary

the Emmet County Medical Society, on the staff of the Coleman Hospital, aged 72, died, February 12, of cirrhosis of the liver and lymphoma

Hiram Roscoe Gilham, Houston, Texas, University of Louisville (Ky.) Medical Department, 1909 member of the State Medical Association of Texas, aged 65, died, February 11, in the Memorial Hospital, of pyloric stenosis, duodenal ulcer and pneumonia

Robert Woods Colville, Mount Vernon, Ohio, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1882, past president of the Knox County Medical Society, formerly member of the local board of education, aged 86, died, February 5

Dwight Addison Mathes @ Jefferson, Iowa, University of Kansas School of Medicine, Kansas City, 1931, formerly associate in general surgery at the State University of Iowa College of Medicine, aged 35, died suddenly, February 10, of heart disease

William Sparks McElrath, Cedar Bluff, Ala., Memphis (Tenn.) Hospital Medical College, 1900, member of the Medical Association of the State of Alabama served during the World War, aged 62, died, February 2, of diabetes mellitus

Henry A. Hart, Memphis, Tenn., National University of Arts and Sciences Medical Department, St. Louis 1912 member of the Tennessee State Medical Association aged 54, died, February 21, in St. Joseph's Hospital, of hypernephroma

Isaacs Joseph Altwer, New York Magyar Kiralyi Pazmany Petrus Tudományegyetem Orvosi Faltulasa, Budapest, Hungary, 1891, aged 73, died, February 11 in Monticello, N. Y., when he severed his jugular vein with a scalpel

Joseph Peter Hanlon, Hudson, Mass. Baltimore Medical College, 1903, member of the Massachusetts Medical Society for many years school physician, aged 64 died February 4, in Lakeville, of tuberculosis of the larynx and lungs

William Porter Hughes, Russellville Ala., Kentucky School of Medicine, Louisville, 1896, member of the Medical Association of the State of Alabama aged 69, died, February 14, at Florence, of heart disease and arteriosclerosis

Conrad Favaro, West New York, N. J., Georgetown University School of Medicine, Washington D. C., 1927 aged 35, died, February 14, in the Hospital for Joint Diseases, New York, of streptococcal meningitis and multiple sclerosis

Hagop B. Asadoorian, Pasadena, Calif., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1888, at one time coroner in Carbon County, Utah, aged 76, died February 8, of coronary thrombosis

Benjamin P. Andrews, Dansville, N. Y., New York Homeopathic Medical College, New York 1877, member of the Medical Society of the State of New York, aged 81, died, February 7, of coronary thrombosis

Glenn Washington Briggs, Waltham, Neb. John A. Creighton Medical College, Omaha, 1914 member of the Nebraska State Medical Association, aged 47, was found dead, February 4 of pulmonary embolism

George H. Kister, Evansville Ind. University of Louisville (Ky.) Medical Department 1897 aged 67, died, February 1 in the Methodist Episcopal Hospital, Princeton, of injuries received in an automobile accident

Charles Alexander Jordan, Cragford, Ala., Southern Medical College Atlanta, Ga. 1884, member of the Medical Association of the State of Alabama, aged 78, died February 6, in Roanoke, of cardiorenal disease

Edward Calvin Bechtol, Montgomery, Mich., Michigan College of Medicine and Surgery, Detroit 1896, aged 63, died, February 22, in the Cameron Hospital, Angola, Ind., of cholelithiasis and cirrhosis of the liver

Samuel F. King, El Paso Texas, University of Louisville (Ky.) Medical Department, 1884, member of the State Medical Association of Texas, aged 75 died February 6, of carcinoma of the prostate liver and lungs

Stephen Madison McCaskill, Camden S. C., Medical College of the State of South Carolina, Charleston 1910 member of the South Carolina Medical Association, aged 66, died February 2 of chronic myelitis

Fleming James O'Connor, Little Rock, Ark. Tulane University of Louisiana Medical Department New Orleans 1909 served during the World War, aged 53, died, February 3 of coronary thrombosis

Allen D. McReynolds @ Stamford Texas St. Louis College of Physicians and Surgeons 1898, past president of the Jones County Medical Society, aged 62, died, January 13, of coronary thrombosis

James Hugh Brodie Allan, Montreal, Que., Canada, McGill University Faculty of Medicine, Montreal, 1885, L.R.C.P., London, England, 1885 and M.R.C.S., England, 1887, aged 75, died, January 26

Henry T. Norrgard, Milaca, Minn., University of Minnesota Medical School, Minneapolis, 1921 member of the Minnesota State Medical Association, aged 49, died, February 11, of coronary thrombosis

Charles Tighman Kemmerer, Davenport Iowa, State University of Iowa College of Medicine, Iowa City, 1878, aged 86, died, February 21, in Miami, Fla., of hypostatic pneumonia and arteriosclerosis

William D. Richardson, Centralia Ill., College of Physicians and Surgeons, Keokuk, Iowa, 1878, member of the Illinois State Medical Society, aged 86, died suddenly, February 7, of coronary occlusion

Thomas Young Kimball, Manton, Mich., Grand Rapids (Mich.) Medical College, 1899 aged 63, died, February 1, in the Charles Godwin Jennings Hospital, Detroit, of hemorrhage into the cerebrum

John James Stephens, Springfield, Ark., Vanderbilt University School of Medicine, Nashville Tenn., 1886, aged 72, died February 24, in a hospital at Little Rock, of bronchopneumonia

Timothy Joseph Reardon @ Boston, Harvard University Medical School, Boston, 1894 member of the New England Otological and Laryngological Society, aged 65, died, February 17

Robert Henry Shaw, Lyndon, Ill., College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1901, aged 60, died, January 3, of pulmonary hemorrhage

Arthur James Oliver @ Muscatine, Iowa, Rush Medical College Chicago 1896, on the staff of the Benjamin Hershey Memorial Hospital, aged 67, died, February 19, of arteriosclerosis

Eugene J. Johnson, Memphis Tenn., Memphis Hospital Medical College, 1897, on the staff of the Methodist Hospital, aged 62, died, February 18, in the Baptist Hospital of pneumonia

Alexander Hugh Macdonald, New York Columbia University College of Physicians and Surgeons New York, 1924, aged 39, died, January 5, in Hartford, Conn., of bronchopneumonia

John Samuel Hick Leard @ Boston, University of Pennsylvania Department of Medicine, Philadelphia 1894, formerly on the staff of the Faulkner Hospital, aged 71, died, February 3

Edward C. English, Rensselaer, Ind. Rush Medical College Chicago, 1895, member of the school board, at one time county health officer, aged 77, died in February of pneumonia

Russell Viley Rice, Louisville Ky., Howard University College of Medicine, Washington, D. C. 1925, aged 38, died January 2 in the Red Cross Hospital, of nephritis and uremia

Isaac B. Nofsinger, Elgin Texas Kentucky School of Medicine Louisville, 1891 member of the State Medical Association of Texas aged 73, died, February 13, of angina pectoris

Charles F. Burkhalter @ Higbee, Mo., Washington University School of Medicine St. Louis, 1895 aged 70, died February 10 in the Woodland Hospital, Moberly, of pneumonia

Frederic Edward Rainville, Jewett City, Conn. University of Vermont College of Medicine Burlington, 1891, aged 76, died, January 24 of arteriosclerosis and heart disease

John Roseman Marshall @ Union Mo. St. Louis University School of Medicine, 1930 aged 37 died February 12, in the Firmin Desloge Hospital St. Louis, of septicaemia

S. E. Cummings, Ravia Okla., St. Louis College of Physicians and Surgeons 1905 aged 69 died February 10, in Ardmore, of injuries received in an automobile accident

John Carl Walliser, Piedmont, Calif., Universität Basel Medizinische Fakultät Switzerland 1874 aged 93, died, January 14 of cerebral hemorrhage and arteriosclerosis

Alexander Boyce Marion, Brooklyn University of the City of New York Medical Department 1888 aged 76, died, February 16 in the Swedish Hospital of pneumonia

Robert Ellegood Sanford Del. Jefferson Medical College of Philadelphia 1886 aged 77 died February 15 in the Pennsylvania General Hospital Salisbury Md. of nephritis

Warren Arthur Fitzgerald, Brooklyn St. Louis University School of Medicine 1935 aged 28 intern at St. Mary's Hospital where he died February 8 of pneumonia

Oliver P Worley, Hagerstown, Ind., Physio-Medical College of Indiana, Indianapolis, 1886, aged 80, died, January 27, of arteriosclerosis and hypertrophy of the prostate

Louis Henry Cisler, Marietta, Ohio, University of Pennsylvania Department of Medicine, Philadelphia, 1895, aged 67, died, February 14, of nephritis and arteriosclerosis

James F Michel, Farmingdale, N Y., Syracuse University College of Medicine, 1886, health officer and bank president, aged 72, died, January 21, of myocarditis

Ivan Procter Battle, Rocky Mount, N C., Jefferson Medical College of Philadelphia, 1904, aged 57, died, February 20, of angina pectoris due to coronary occlusion

Pasquale Pio Eliseo, New York, George Washington University School of Medicine, Washington, D C., 1933, aged 29, died, January 22, of pulmonary tuberculosis

John Alexander Bortz, Quincy, Ill., Keokuk (Ia.) Medical College, 1892, served during the World War, aged 74, died, February 8, of carcinoma of the prostate

Duncan Gow, Calgary, Alta., Canada, Trinity Medical College, Toronto, Ont., 1884, L R C S., Edinburgh, 1884, L R C P., London, 1885, aged 75, died, January 12

Morrow A Miller, Los Angeles, Jefferson Medical College of Philadelphia, 1883, aged 78, died in February, of hypertrophy of the prostate and myocarditis

J Spencer Wright, Louisville, Ky., Hospital College of Medicine, Louisville, 1902, aged 60, died, January 4, in the City Hospital, of coronary occlusion

William Irby Cocke, Syracuse, N Y., Bellevue Hospital Medical College, New York, 1891, aged 75, died, January 6, of heart disease and arteriosclerosis

Mason Lee Smith, Watertown, N Y., University of the City of New York Medical Department, 1881, aged 78, died, January 19, of chronic myocarditis

Charles Oscar Allen, Logan, Ohio, Medical College of Ohio, Cincinnati, 1882, aged 80, died, February 2, of epithelioma of the heel with metastasis

Calvin B Stark, Miller, Ark., Arkansas Industrial University Medical Department, Little Rock, 1890, aged 69, died, February 25, of lobar pneumonia

Abner Columbus McCulley, Morganfield, Ky., Meharry Medical College, Nashville, Tenn., 1901, aged 60, died, February 19, of cerebral hemorrhage

Rufus Raymond Alwood, Montpelier, Ohio, Western Reserve University Medical Department, Cleveland, 1882, aged 83, died, February 8, of uremia

William Luther Miller, Oklahoma City, University of Louisville (Ky.) Medical Department, 1888, aged 75, died, January 6, of cerebral hemorrhage

Arthur Hall Mosher, Le Mars, Iowa, Rush Medical College, Chicago, 1882, aged 78, died, February 9, of cerebral thrombosis and arteriosclerosis

Joseph M Soper, Stuart, Iowa, Western University Faculty of Medicine, London, Ont., Canada, 1906, aged 57, died, January 29, of angina pectoris

William Lemon White, Chewelah, Wash., University of Oregon Medical School, Portland, 1890, aged 81, died, January 30, of pulmonary hemorrhage

Carl Gruber, Clinton, Iowa, Hahnemann Medical College and Hospital, Chicago, 1886, aged 82, died, January 8, of arteriosclerosis and nephritis

Edward Barr, Owensboro, Ky., Louisville (Ky.) Medical College, 1903, served during the World War, aged 61, died, February 14, of tuberculosis

Henry Garrybrant Jenner, Dayton, Ohio, Bellevue Hospital Medical College, New York, 1890, aged 71, died, February 6, of pernicious anemia

Claude Wolcott, Amarillo, Texas (licensed in Texas, under the Act of 1907), aged 66, died, January 5, in St. Anthony's Hospital of angina pectoris

James H Coleman, Cartersville, Ill., University of Tennessee Medical Department, Nashville, 1882, aged 87, died, February 18, of carcinoma

Oley G Bean, Casselton, N D., State University of Iowa College of Medicine, Iowa City, 1898, aged 68, died, February 2, of cerebral hemorrhage

Frank Howard Yarnall, West Lafayette, Ohio, Columbus Medical College, 1879, aged 83, was killed, January 25, when struck by an automobile

Maria Whittelsey Norris, Grand Rapids, Mich., University School of Medicine, 1892, aged 82, died, February 4, of lobar pneumonia

William Allen Mason, Uriah, Ala., Medical College of Alabama, Mobile, 1906, aged 61, died, February 19, of dilatation of the heart

Charles Hewitt Amys, Peterborough, Ont., Canada, Queen's University Faculty of Medicine, Kingston, 1899, aged 65, died, January 18

William B Carolus, Sterling, Ill., Hahnemann Medical College and Hospital, Chicago, 1888, aged 77, died, February 13, of arteriosclerosis

Augustine Charles McGuire, Pelham, N Y., Dartmouth Medical School, Hanover, N H., 1894, aged 66, died, January 27, of myocarditis

G Frank Russell, Louisville, Ky., Louisville Medical College, 1896, aged 77, died, January 27, of coronary occlusion and diabetes mellitus

William Finkelstein, New York, Columbia University College of Physicians and Surgeons, New York, 1918, aged 49, died, January 7

Thayer H La Monte, Canaseraga, N Y., Eclectic Medical Institute, Cincinnati, 1880, aged 84, died, February 17, of coronary embolism

Chesley R Peck, Doylestown, O., Louisville (Ky.) Medical College, 1893, aged 74, died, February 3, of coronary thrombosis

Hiram A Kendall, Buffalo, University of Buffalo School of Medicine, 1891, aged 72, died, February 14, of coronary thrombosis

David Cecil Johnston, St. John's, Newfoundland, Queen's University Faculty of Medicine, Kingston, 1931, aged 34, died, January 8

Charles Arnold Trotman, Neosho, Mo., Washington University School of Medicine, St. Louis, 1901, was found dead, January 2

John Steele Smith, Edmonton, Alta., Canada, University of Glasgow Medical Faculty, Scotland, 1900, aged 61, died, January 2

William Robert Pope, Kosciusko, Miss., University of Nashville (Tenn.) Medical Department, 1900, aged 67, died, January 2

Larkin E Williams, Clever, Mo., Barnes Medical College, St. Louis, 1896, served during the World War, aged 66, died, January 4

Virgil Ulysses Moss, Rockfield, Ky., University of Louisville Medical Department, 1872, aged 89, died, February 2, of uremia

Bernard Livingston, New York, Albany (N Y.) Medical College, 1899, aged 62, died, February 7, of coronary occlusion

Wilson Wesley Adams, Los Angeles, Rush Medical College, Chicago, 1883, aged 84, died, February 12, of arteriosclerosis

F Edward Smith, Baltimore, Maryland Medical College, Baltimore, 1902, aged 57, died in February of cardiovascular disease

Jethro J Crawley, Greenfield, Tenn., Kentucky School of Medicine, Louisville, 1907, aged 56, died, February 7, of heart disease

Charles Lambert Brook Stammers, Smith's Falls, Ont., Canada, Trinity Medical College, Toronto, 1895, died, January 27

Ambrose Thomas Stanton, London, England, Trinity Medical College, Toronto, Ont., Canada, 1899, died, January 2

Marvin Simeon Stough, Dothan, Ala., Atlanta College of Physicians and Surgeons, 1899, aged 60, died, January 3

Leon Didier Gauthier, Providence, R I., Boston University School of Medicine, 1889, aged 71, died, January 23

John Charles F Bell, Lucas, Iowa, College of Physicians and Surgeons, Keokuk, 1883, aged 81, died, January 1

Ira Ulman, Ramapo, N Y., Baltimore Medical College, 1906, aged 66, died, February 17, of coronary disease

Richard L Fite, Tahlequah, Okla., Southern Medical College, Atlanta, 1881, aged 81, died, January 1

John A Stutz, Los Angeles, New York, Homeopathic Medical College, 1886, aged 77, died, January 4

George W Van Horne, Grant Park, Ill., Chicago Medical College, 1875, aged 89, died, January 9



## Correspondence

### TREATMENT OF FRACTURED PATELLA WITH EXTERNAL PURSE STRING

*To the Editor*—A simple but effective procedure has been found of service in the conservative treatment of simple or comminuted fractures of the patella. After the blood has been removed from the joint and the thigh flexed on the body with the leg in extension by some such apparatus as a Thomas splint, an external purse string is applied to the patella in the following manner. Pressure pads are applied and fastened by adhesive tape to the periphery of the patella, partially unrolled bandages well compressed will suffice. Then a length of elastic rubber tubing is carried around the pads, drawn snugly and clamped. It is well to use a small pad on each side of the patellar ligament. If a pad is placed on the ligament, the force applied will tend to tip the lower fragment forward, i. e., the fracture line will be forced away from the joint.

This method holds the upper fragment to a lower position than can be obtained by strapping, because the adhesive strapping slips over a period of time. The adhesive slips in this method but is compensated for by the constant tension of the rubber.

W. CRAIG HENDRICKS, M.D., Brookville, Pa.

### ADMINISTRATION OF CALCIUM SALTS

*To the Editor*—In Queries and Minor Notes (THE JOURNAL, March 19) a correspondent, inquiring about the use of calcium salts in asthma, is told to use "tricalcium phosphate 4 Gm in milk three times daily, calcium lactate 2 Gm four times daily or calcium gluconate 4 Gm four times daily." The recommendation of the use of tricalcium phosphate in milk as a method of administration of calcium is so much at variance with what is known about calcium absorption that it seems desirable to call attention to the following experimental data and basic facts.

In 1927 Roe and Kahn (Absorption of Calcium from the Intestinal Tract of Human Subjects, THE JOURNAL, March 26, 1927, p. 980) observed a 91 per cent rise in the blood calcium of a normal human subject given 5 Gm of calcium lactate in water by mouth and only a 28 per cent elevation of the blood calcium in the same subject on another day when given 5 Gm of calcium lactate in milk hourly for eleven hours (a total administration of 55 Gm). Similar failures to elevate the blood calcium appreciably when calcium lactate was given with carbohydrate or protein meals as compared with the response given when administered in water under fasting conditions were noted. These results demonstrated clearly that milk is an undesirable vehicle for the therapeutic administration of calcium and that the best results are obtainable when calcium salts are given not mixed with foods.

The results of Roe and Kahn were explained as being due to the influence of the digestive fluids on the absorption of calcium. The absorbability of calcium is dependent on its solubility which in turn is influenced by the  $pH$  of the intestinal contents. Calcium phosphate is highly insoluble in a neutral or alkaline medium. Calcium carbonate and the calcium salts of the higher fatty acids likewise have a low solubility under similar conditions. The introduction of foods into the intestinal tract brings forth a secretion of bile and pancreatic and intestinal secretions which are alkaline fluids. As the acid chyme entering the duodenum is neutralized by these fluids and the  $pH$  of the intestinal contents shifts toward the alkaline range, the solubility of calcium phosphate or calcium bicarbonate or calcium salts of fatty acids is diminished and finally when the reaction reaches a neutral or alkaline  $pH$  these salts are quite insoluble and the absorption of calcium

if present as any of these compounds, becomes very slight. It is clear then that the most favorable absorption of calcium from the intestinal tract is obtained when the drug is administered free from the influence of foods. For these reasons the therapeutic procedure of administering calcium compounds in water or fruit juices from one-half to one hour before meals has been widely adopted.

The advice to your correspondent also raises the question of whether calcium phosphate should be used at all in the administration of calcium orally. The chemical and physiologic facts mentioned are opposed to such usage. Even though the acid calcium phosphate is administered, the objection still remains that the phosphate becomes a chemical precipitant of calcium as soon as the  $pH$  of the intestinal tract reaches a neutral or alkaline range. Further space need not be consumed here to show that the experimental data in the literature on this subject indicate conclusively that calcium is best absorbed when administered as one of the salts which does not include a calcium precipitating ion when the  $pH$  of the intestinal tract is increased.

Apparently the use of calcium phosphate has come about as an attempt to increase the nutritive supply of inorganic phosphate as well as to supply calcium. Even granting the desirability of making available to the organism an increased amount of phosphorus, a better result would be obtained by administering calcium and phosphorus as constituents of other compounds than calcium phosphate and not simultaneously. But the desirability of the administration of phosphate for nutritive purposes, when there is ingested the usual diet which contains phosphoproteins and phospholipids and which normally brings about the excretion in the urine of from 1 to 3 Gm of phosphate, as  $P_2O_5$  per twenty-four hours, is as yet unproved.

JOSEPH H. ROE, PH.D., Washington, D. C.  
Professor of Biochemistry, George Washington  
University School of Medicine

### BENZEDRINE SULFATE

*To the Editor*—No one who has the advance of medicine and the safety of the public at heart can fail to agree with the main tenets of the editorial which appeared in THE JOURNAL March 19 entitled "Benzedrine Sulfate—A Warning." No powerful drug should be sold over the counter, nor should it for any purpose whatsoever be self-administered. This reproach does not apply, of course, merely to benzedrine sulfate but to the wide and indiscriminate use of bromides, barbiturates and even the apparently innocuous vitamins.

However, there are certain definite exceptions to take to the editorial in reference to the specific article with which it concerns itself, namely, the article by us on obesity. In the first place, these patients were selected from an internists (Dr. Lesses') office practice and, on the whole, would not be distinguishable from the bulk of obese patients. True, they were mainly anhedonic but the point of the paper is that in large measure obesity represents an impaired appetite and impaired activity of anhedonic nature and the value of the drug used lay in the fact that it helped counteract these symptoms and thus enabled the patient to carry out more adequately the dietary treatment prescribed. Your statement, therefore, that "even if benzedrine could be safely and effectively used to reduce weight there is no evidence that it will have any permanent effect on weight" is entirely beside the point. No drug operates ad infinitum. No drug in itself produces the fortitude of character and the discipline or personality by which individuals keep their weight down to normal after it has once been brought to this level. The diabetic patient has to keep on using insulin, which is no argument against insulin and there is no guarantee that the proper use of digitalis will keep the heart muscle normal after the digitalis is discontinued.

As to addiction, the drugs to which human beings become addicted are the narcotics. There is no evidence in the entire literature of medicine that stimulants become habit forming. Alcohol, morphine, cocaine—to select a few—are narcotics, and it is a necessary part of the habituation process that larger and larger doses are required to produce the effect. One of us (Myerson) has had clinical experience with benzedrine sulfate for more than two years in a very large number of cases and has not seen a single case of addiction in the sense that a person, otherwise well, now feels it necessary to take the drug habitually and in ascending doses to produce a desired effect. The bad effects of an overdose of benzedrine sulfate immediately bring about a cessation of its use. Automatically the patient drops it. Even caffeine, which is a powerful stimulant, is never used as a drug, it is used as a beverage, and until benzedrine sulfate is introduced as a beverage no one need fear in any consequential manner drug addiction.

The abuse of a drug is no argument against its use. Normal fatigue demands rest, and this is its only cure. Abnormal intake of food demands normal intake if obesity is finally to be cured. All any drug can do is to help the individual under proper supervision to reach those habits of mind and body which finally bring about and preserve health.

MARK FALCON LESSES, M.D.  
ABRAHAM MYERSON, M.D.  
Boston

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### INDUSTRIAL POISONS, WAR GAS AND LEUKEMIA

*To the Editor*—I am much interested in the pathogenesis of leukemia. Have cases been reported following industrial poisoning? Is there any known relationship to war gas poisoning or have cases been reported following such exposure?

M.D. New York

*ANSWER*—The evidence that leukemia may develop following various types of industrial poisoning is only fragmentary and certainly questionable. The evidence is indirect and includes a few reported instances of leukemia following exposure to toxic agents, particularly benzene and radioactive materials, including radium and x-rays.

Concerning the development of leukemia after the exposure to benzene in industry, Falconer (*Ann. J. M. Sc.* 186:353 [Sept.] 1933) reported an instance of lymphatic leukemia in a white man four years after an attack of acute benzene poisoning by inhalation. He suggested that the leukemia may have developed as an overcompensatory measure for previous destruction of leukopoietic tissues.

Delore and Borgomano (*J. de med. de Lyon* 9:227 [April 20] 1928) reported an instance of leukemia developing in a man who had been exposed to benzene for five years, using it as an extracting agent in the manufacture of aminopyrine.

Alice Hamilton (*Industrial Toxicology*, New York, Harper & Brothers, 1934, p. 163) refers to an observation of Martland, who noted a blood picture characteristic of myelogenous leukemia in a patient with benzene poisoning. Also she has seen two such cases herself.

There is certain experimental evidence to indicate the possible association of benzene poisoning with leukemia. If benzene is injected into laboratory animals, the usual result is a suppression of hematopoiesis. Thus, aplastic anemia is the usual result not only in laboratory animals but in persons suffering from benzene poisoning. However, Bungeler (*Klin. Wchenschr.* 11:1982, 1932) administered small doses of indole to mice and was able to produce a wide variety of hematopoietic pictures, which included apparently leukemic states in a few of the animals. Also Lignac (*Klin. Wchenschr.* 12:109 [Jan. 21] 1933) injected mice with benzene and reported leukemic blood pictures in some of the animals. Bernard (*Sang.* 8:28, 1934) injected tar into rats and observed leukemic blood pictures in a small percentage of them.

It appears possible that any agent such as benzene that is known to be capable of producing suppression of marrow activity could conceivably, when used in smaller doses, produce various degrees of marrow hyperplasia resulting in the development of the leukemic states. The Parsons (*J. Ind. Hyg. & Toxicol.* 20:124, 1938) have reported two instances of severe granulopenia after exposure by inhalation to ethylglycol monomethyl ether, which is a component of methyl 'cellosolve' used in stiffening shirt collars. Furthermore, Greenburg and his associates (*J. Indust. Hyg. & Toxicol.* 20:134, 1938) found a shift toward granulocytic immaturity in all of nineteen employees engaged in this work and disturbed erythropoiesis in nine.

Development of leukemia after exposure to radioactive substances also seems possible. Carman and Miller (*Radiol.* 3:408 [Nov.] 1924) reported an instance of lymphatic leukemia in a radiologist, and von Jagie and his associates (*Berl. Kl. Wchenschr.* 48:1220, 1911) cited three cases of lymphatic leukemia after excessive exposure to radium. Also Weil and Lacassagne (*Bull. Acad. de med. Paris* 93:237 [March 3] 1928) observed an instance of typical myelogenous leukemia in a person who had been working with radium and thorium. Weil (*Presse med.* 33:1297 [Sept. 30] 1923) observed two instances of myelogenous leukemia in persons who had been working with radioactive substances. Concerning this question, Martland (*THE JOURNAL*, Feb. 16, 1929, p. 552) said: "The opinions of different authorities all agree that contact with radioactive substances and x-rays frequently produces a leukopenia, more rarely a leukemia. All workers with x-rays and radioactive substances are potential candidates at any time for the development of a serious and fatal anemia or leukemia." On this basis it would appear indicated in all instances of leukemia to investigate possible contact with such agents.

There seems to be no relation between leukemia and war gas poisoning. Gilchrist and Matz (*Special Bull. Chem. Warfare Service U. S. Army, Washington, D. C., Government Printing Office*, 1933) made a careful study of representative groups of the 70,752 United States soldiers who were gassed during the World War and among the various complications leukemia was not noted. This study included persons who had been gassed with chlorine, mustard gas, phosgene and arsine.

Matz writes: "As far as I know from a study of a large group of veterans who were actually gassed during the World War I am unable to find any cases which gave residual evidence of chronic myeloid or lymphatic leukemia or acute leukemia immediately following the gassing. In addition, I have gone over a number of publications on the effect of gassing administered both experimentally and during actual warfare and find no reference or evidence of a causal relationship. Accordingly, I am of the opinion that there is no relationship between warfare gassing and leukemia."

### OPERATIONS IN EPILEPSY

*To the Editor*—A patient with traumatic epilepsy from an automobile accident has asked about the treatment of epilepsy by removing the top of the skull to relax irritated brain attachments. Any information that you can give me will be appreciated.

M.D. Virginia

*ANSWER*—Decompression or trepanation for convulsions was the earliest proved adventure of man into the field of major surgery. The surgical approach to the brain for the treatment of convulsions is therefore not a recent or new method. In all cases of epilepsy in which trauma is actually or thought to be a factor a careful neurologic, psychiatric and ophthalmologic examination is indicated for the sole purpose of determining whether or not the convulsive seizures are due to either an idiopathic convulsive state or a definite organic disturbance involving the meninges, the cortex or the subcortical brain tissue. Removing the top of the skull to relax irritated brain attachments in idiopathic epilepsy is useless, according to neurologic surgeons. If careful examinations show definite evidence of organic involvement of the meninges, cortex and subcortical brain tissue and if the auras and history of the convulsion have a definite causal relationship between the onset of the trauma and the beginning of the convulsions, surgical intervention is indicated. It has been well established that when the brain is injured and the damaged cerebral tissue is removed a scar of fibrous astrocytes connective tissue is newly formed blood vessels develop. This scar soon becomes densely adherent to the overlying meninges and like all other scar tissue, contracts. Otto Foerster and Wilder Penfield (*Epilepsy and the Convulsive State*, Baltimore, Williams & Wilkins Company, 1931) have described the mechanism of pull of the cicatrix and the pathologic changes occurring in the

scar tissues removed at operation Loyal Davis of Chicago states that the pathogenic relation between the formation of a scar in the brain as the result of an injury, the development of a vascular plexus, the steady pull of the contracting scar, and epileptiform seizures is definite Only the careful study of patients will answer the question of the wisdom of the surgical excision of scar tissue for the relief of post-traumatic epileptic seizures Davis's group of patients who were operated on were limited to those who had organic evidences of the severity of their original injury, those who had organic symptoms following their convulsions and those in whom encephalographic studies demonstrated a mechanical defect His results have been definitely encouraging Even though the scar can be removed surgically, however, it may be necessary to give the patient bromide or phenobarbital postoperatively

#### SOFTENING CITY WATER SUPPLIES

To the Editor—I have a question pertaining to water softening on a commercial scale for my particular city We have very hard water which comes from wells This is chlorinated and rates high as far as purity and taste are concerned However I am interested in the degree of softness possible Is there any valid reason why municipal water plants should not soften their drinking water? Is the process expensive? Does it affect the taste of the water in any way? How generally is water softened in cities of 30 000?

M D Ohio

ANSWER—As a general rule, in a community having an objectionably 'hard' public water supply, it can be readily demonstrated that the extra cost of soap and other compounds for water "softening" by domestic, commercial and industrial consumers would be more than sufficient to pay the cost of softening the entire water supply for the community The cost of the softening process would depend on the degree of hardness of the water originally and on the extent to which it is desired to soften

The chemicals most commonly used in softening public water supplies are lime, lime and soda ash or base exchange materials known as zeolites, which are silicates containing sodium

With proper control over the chemical treatment of the water softening process, the palatability of the water should not be affected

The softening of public water supplies as an economic measure as well as one of public convenience has developed rapidly during the last ten years, especially in the central western and southwestern sections of this country

#### HABITUATION TO SEDATIVES AND WITHDRAWAL

To the Editor—A member of my family a woman 39 years of age has suffered from insomnia for about two years The onset followed the sickness and death of her baby at the age of 3½ months So far as I know she has no unusual worries and is apparently in good general health She has been examined by a competent internist a professor of gynecology and a professor of neurology all of whom report nothing abnormal At the birth of her child pentobarbital sodium was used and she since has taken various members of the barbituric acid series She is able to sleep quite well under a sedative but seems unable to sleep otherwise On several occasions no sedative was taken and the next day found her completely exhausted and highly nervous Warm drinks bromides and nightly warm baths are without effect I have been advised by the men who have seen her that she should choose the lesser of two evils namely the sedative They seem to agree that it is better for her to take something and sleep rather than take nothing at all and be miserable the entire next day I cannot make myself believe that any sedative frequently repeated is without harm I believe it should be stopped but how to stop it is quite another thing Can you suggest some help?

M D New York

ANSWER—Although the barbiturates are not considered to be habit forming drugs in the strictest sense of the term, instances similar to the one described are common Dependence is placed on the drug to induce sleep and the patient is unable to go to sleep without it

After a period of use as long as the one described it is difficult, if not impossible, to withdraw the drug suddenly unless a substitute is used which is milder in action The barbiturates as a class comprise the more powerful hypnotics and sedatives The simple bromides are among the mildest of the sedatives In substituting a bromide for a barbiturate there is an abrupt change in sedative power In a case such as described the following method may be tried The barbiturate is stopped and in its place a drug which is midway in sedative action is substituted such as carbromal (U S P XI) This is diethyl-bromacetil urca and is not a barbiturate This may be given in doses up to 1 Gm if needed about a half hour before bedtime The dose is reduced gradually until perhaps 0.3 Gm is sufficient Then a solution of sodium bromide is substituted This is then gradually reduced as the patient regains his ability to sleep The bromide is then discontinued The process may

be somewhat slow and the time of withdrawal of all sedation somewhat long, but if persisted in the patient will become accustomed to sleep without sedatives

It would seem advisable in this case to attempt to find the underlying cause of the insomnia If this could be removed, permanent relief might be hastened

#### HERPES SIMPLEX IN TROMBONE PLAYER

To the Editor—I am asked to give advice to a nationally famous trombone artist who asks I am continually bothered with fever blisters on my lips Would you advise me to play while I have them? What should I do to prevent them?

M D Illinois

ANSWER—The present theory of the etiology of herpes simplex is based on the presence in the fluid from herpes vesicles of a virus that causes herpes on the cornea of animals when inoculated and often is absorbed, causing an encephalitis This virus is filtrable, withstands drying, and is destroyed by a temperature of 56 C and by bile It is pathogenic for rabbits, guinea-pigs, cats, dogs and mice but not for cold blooded animals or for birds It is neurotropic in animals and dermotropic in man

The filtrate of an emulsion of brain of herpes encephalitis can be inoculated on the cornea of another animal and will cause herpes there and often encephalitis It is thought, therefore, that the various diseases and physical, actinic or nervous traumas, all the influences formerly thought of real etiologic significance, are only provocative They cause a lowering of the resistance to the herpes virus, already latent in the tissues, allowing it to act and cause a vesicular eruption The nerve endings in the skin or mucous membranes seem to be the tissues acted on by the virus Most persons harbor the virus, according to this theory, but maintain enough resistance to keep it ordinarily in abeyance

Biberstein and Jessner (Untersuchungen zur Herpesfrage, *Arch f Dermat u Syph* 173 48, 1935) found that the application on scarified skin of a sterilized emulsion of the brain of rabbits or guinea pigs with herpes encephalitis caused no reaction in persons with symptomatic herpes, the ordinary form, but regularly caused a reaction in those with recurrent herpes Apparently the recurrent form of herpes is accompanied by a hypersensitiveness to the herpes virus With repeated use of the vaccine in this way they succeeded in desensitizing eleven of thirteen patients treated

Early in this century Plesch had inoculated himself with serum from a vesicle of his own eruption and thereafter was free from herpes for many years, though he had had attacks frequently before this He then treated patients in this way with many successes Others have used this method with varying results Schmidt (Vaccination for Herpes, *Arch Dermat & Syph* 32 106 [July] 1935) reported four cases in which treatment was given in this manner Two of the patients were free from herpes for two years after one inoculation The other two required a second treatment after which they had no further attacks The first vaccination caused a local reaction in all, redness, warmth and slight elevation In one patient there were a general reaction chilly sensations and nausea for a short time several hours after the inoculation Neither of the second inoculations caused a reaction of any kind

Alcoholic drinks, strong condiments and tobacco should be avoided Autoserum or autoblood injections have been of service in preventing recurrences Ultraviolet irradiation of the site of the herpes and roentgen rays in divided doses between attacks are helpful Cinchophen has been of service in preventing recurrences on the mucous membranes Phenobarbital in doses of 0.05 Gm has been successful in the experience of Laurent (Une traitement nouvelle de l'urticaire de l'herpes et du zona par le phényl éthyl malonylurée [phenobarbital] *J de med de Paris* 56 268 [March 26] 1936) Dunow (Note préliminaire sur le traitement de l'herpes et du zona par le vitamine C [acide ascorbique], *Ann de dermat et de syph* 7 817 [Sept] 1936) claims that vitamin C in a 0.1 Gm dose intravenously once a day caused the rapid clearing of the herpes eruption but he was not able to prevent further attacks except in the menstrual cases in which the recurrences could be predicted

The most popular treatment of herpes is the frequent dabbing of the vesicles with spirit of camphor Some patients prefer to apply lotio alba (sulfurated potash 1 Gm and zinc sulfate 1 Gm in 30 cc of rose water) This should not be kept long, for it deteriorates

It seems advisable for the trombonist to refrain from playing when afflicted with herpes for irritation may increase the frequency of the attacks

## ACQUIRED OR CONGENITAL SYPHILIS IN PREGNANCY

*To the Editor*—Please summarize for me the best methods for treating the following case of syphilis. A primipara married nine years whose husband has diabetes missed two periods and the signs and symptoms are those of a pregnancy. A Wassermann test several years ago was positive. She cannot recall primary or secondary signs of syphilis. She was given neoarsphenamine and after a few treatments had a severe arsenical dermatitis. After about six weeks she was able to return for treatment and bismuth injections were used. She again had a severe dermatitis. Since then she has been unable and afraid to take injection therapy but has taken mixed therapy by mouth. Her Wassermann reaction is now two plus. A spinal Wassermann test has not been taken. Her reflexes are normal. Her general condition is good and she has no complaints. She believes she has congenital syphilis because her mother and brother have both been found to be infected. The serologic reaction of her father is negative.

M D West Virginia

**ANSWER**—It is rather important in this case that the question of congenital syphilis or acquired syphilis be answered. It makes a great deal of difference in the outlook for the patient and certainly for the unborn child. The fact that the mother has syphilis and the father has a negative serologic reaction is of course suggestive that the patient may have congenital syphilis. It is stated that there are no manifestations of active syphilis. On the other hand, is there any evidence of a keratitis, of Hutchinson's teeth, of mulberry molars, of eighth nerve deafness or of saber shins? Is there a history in the past of cutaneous manifestations of any type that would suggest prenatal syphilis? Certainly if the patient has congenital syphilis one need not worry particularly about the outcome as far as the unborn child is concerned. For the present it is suggested that she be put on intramuscular injections of colloidal mercury sulfide Hille, 3 cc twice a week, for probably ten weeks. If there is any question as to the patient's having congenital syphilis as against acquired syphilis, it might be well for a consultant to see the patient. In case this is acquired syphilis, attempts should be made to use arsenical therapy as well. In patients who are sensitive to neoarsphenamine it is sometimes possible to employ some other arsenical, for example, mapharsen, starting off cautiously in small doses. If the patient has acquired syphilis, and if it is in any way possible, she should receive therapy with alternating courses of arsenic and mercury until the birth of the child.

## GOLDTHWAITE AND ELY SIGNS IN LOW BACK DISEASE

*To the Editor*—Please explain the Goldthwaite and Ely signs used in the differentiation of conditions in the lower part of the back. How are they performed? What are the pathologic conditions present to cause a positive sign and what is the clinical significance of each?

M D California

**ANSWER**—The test used in the differentiation of disorders in the lower part of the back which has sometimes been attributed to Goldthwaite is simply that of straight leg raising. This test has to be interpreted on the basis of leverage transmitted through the hamstrings to the pelvis. It is performed correctly by flexing the thigh with the knee extended and the foot held in a position of 90 degrees dorsiflexion in order to keep the gastrocnemius, as well as the hamstrings, taut. The leg should be raised slowly with one hand under the lower part of the patient's spine. As the hamstrings tighten, leverage is gradually applied to the side of the pelvis. If pain is brought on before the lumbar spine begins to move, a lesion which may be either an arthritis or a sprain of the ligaments involving the sacroiliac joint is probably present. If pain does not come on until after the lumbar spine begins to move, the disease or injury may be in either the sacroiliac or the lumbosacral articulations but is more likely to be lumbosacral. The straight-leg raising test should be repeated on the side opposite to that of which the patient primarily complained. In this instance, if the lesion is lumbosacral, pain should be felt when the leg is raised to approximately the same height as that which produced pain when the leg was raised on the side complained of. If the lesion is primarily sacroiliac it should be possible to raise the leg on the less involved side to a much higher level than on the side complained of without pain. Acute or chronic inflammation of lumbosacral or sacroiliac joints due to trauma, such as an acute or chronic back strain or to infection such as tuberculosis, prostatic arthritis or degenerative changes in the articulations themselves, may be the predisposing factors.

The Ely sign has rarely been mentioned in discussions of pain in the lower part of the back. In 1933 Ely stated in an article (*Backache Lumbago, Pain in the Lower Part of the Back, Arch Surg* 27 [189] [July] 1933) that hyperextension of the leg at the thigh with the patient lying face downward would produce pain if there was a lesion in the lumbar spine or at the lumbosacral joint. In a letter Oct 25 1937 sent in response to a

direct query, Dr Ely stated that this test should be performed with the patient lying prone and the knee flexed. If the test is positive the pelvis will rise from the table before complete extension of the thigh. The author of the test stated that he was not able to determine the exact significance of it but believed that it was positive when there was an irritative lesion located down in the lumbar spine. The studies of Ober, Williams and Goldthwaite would suggest that this sign might be due to a tight iliotibial band and attempt at hyperextension of the thigh would tend to rotate the pelvis downward and to sharpen the angle between the lumbar spine and the sacrum, mechanically contributing to the irritation of the lower lumbar nerve roots.

It would seem that a positive Ely sign is simply one more indication of a lumbosacral lesion.

## ERUPTION OF TEETH AND OSSIFICATION OF BONE IN DETERMINING AGE

*To the Editor*—Which is the more authentic in determining the age of a person roentgenograms of the long bones or of the teeth? The claimed age is 4 years and 8 months. From the long bones such an age is possible but the pictures of the teeth show that this person has erupted permanent teeth which according to various charts should be according to the charts the boy is at least 8 years old. He has the following permanent teeth:

Central incisors	two upper and two lower
Lateral incisors	both lowers
First bicuspid	both right and left lower
Second bicuspid	left lower
First molar	both right and left lower

It is the opinion of those to whom the question was put that at the age of from 4 to 9 the roentgenograms of the teeth would be more certain in determining the approximate age as the time in which the teeth are erupting is rather certain. However, after all the teeth have erupted the long bones might be a better method of determining age. I shall like to obtain a comparison of the two methods of determining the age of a person particularly a person between the ages of 4 to 10. As this case is coming to early trial, I would appreciate an early reply.

M D, Washington

**ANSWER**—The time at which teeth erupt is not an invariable or absolute one. The period of eruption varies not only with the age of the child but also with the rate of body growth in general. Taller children cut their teeth earlier than smaller children. It has also been maintained that there is a relationship between eruption of the teeth and growth and size of the palate. It has not been possible to correlate in point of time the eruption of the teeth to the ossification of the bones of the wrist. It goes without saying that there is a strong relationship between the state of nutrition and the eruption of teeth. Mineral or vitamin deficiency may retard the eruption considerably. Racial and economic differences may also influence the period of eruption. While the temporary teeth appear at intervals with some regularity, the permanent teeth appear with considerable irregularity, and the intervals between the eruptions may vary within wide limits. It is obvious from these considerations that neither the eruption of the temporary or the permanent teeth offers definite or invariable information as to the chronological age of the child.

## Age Periods at Which Certain Bones Undergo Ossification

	Girls	Boys
Os capitatum (os magnum)	Between 3 & 6 mo	Between 4 & 10 yr
Os hamatum (unciform)	Between 3 & 6 mo	Between 6 & 12 yr
Os triquetrum (cuneiform)	Between 2 & 3 yr	With 3rd yr
Os lunatum (semilunar)	Between 3 & 4 yr	With 4th yr
Os naviculare (scaphoid)	Between 4 & 5 yr	With 5th yr
Os multangulum minus (trapezoid)	Between 4 & 5 yr	In 5 & 6 yr
Os pisiforme (pisiform)	Between 9 & 10 yr	In 12 & 13 yr

Using the carpal bones as an index, various investigators have established the difference between the ossification periods that occur in boys and in girls. The accompanying table enumerates the age periods at which under normal conditions, these bones undergo ossification in both sexes.

In considering both of these methods of establishing chronological age, the evidence seems to indicate that neither method should be expected to give absolutely correct values. Both methods should be considered only approximate and subject to numerous variations. All things considered however the bone development would probably give a more approximately correct index than the sequence of tooth development.

It must be assumed also that such abnormal conditions as congenital syphilis, hypothyroidism, glandular disturbances, and avitaminoses such as rickets do not enter into the picture. In these diseases after the time of eruption of the teeth and the progress of bone development to a considerable extent.

## EXTREME HYPERGLYCEMIA

*To the Editor*—A patient brought into the hospital in diabetic coma had a blood sugar on admission of 1500 mg per hundred cubic centimeters. This was checked several times. Within twelve hours the blood sugar was down to 750 mg and this was the last reading before he died. Will you kindly inform me whether similar blood sugars have been reported before?

M D Minnesota

**ANSWER**—Lawrence reported a blood sugar reading of 2060 mg per hundred cubic centimeters in a patient who had received 40 units of insulin two hours previously. This is the highest value recorded in the literature. Blood sugars of 1,710 and of 1,700 mg occurred in cases reported by Argy and by Pitfield.

Dillon and Dyer record the highest blood sugar value in a patient who survived, the patient entered the hospital in diabetic coma with a blood sugar of 1,850. These authors report fifteen other cases with admission blood sugars of 1,000 mg or more, five patients recovered.

Joslin, reviewing the subject of extreme hyperglycemia reports blood sugar values of 1,000 mg or over in thirteen of 338 consecutive cases of diabetic coma. Of the thirteen patients, eight recovered. The highest blood sugar value in his series was 1,620 mg, occurring in a patient who survived. Joslin concludes that although blood sugar values of from 300 to 600 are the rule in diabetic coma, a high blood sugar does not necessarily imply a poor prognosis.

The references are as follows:

- Lawrence R D. Extreme Hyperglycemia in Diabetic Coma. *Brit M J* 1 377 (March 3) 1934.  
Argy W P. Hyperglycemia (171 per cent) with Coma Associated with Absence of Acetone in the Urine. *Boston M & S J* 193 1236 (Dec 31) 1925.  
Pitfield R L. Unusually High Blood Sugar Content in a Case of Diabetes. *M J & Rec* 120 433 (Nov 5) 1924.  
Dillon E S and Dyer W W. Diabetic Coma with Extreme Hyperglycemia. *Am J M Sc* 190 683 (Nov 1) 1935.  
Joslin E P. Treatment of Diabetes Mellitus ed 6 Philadelphia Lea & Febiger 1937 pp 114 128 362.

## COMPLICATIONS OF PARATYPHOID INFECTION

*To the Editor*—Please send to me any information you have regarding the lung and intestinal involvements and febrile reactions in paratyphoid A infection. I have recently had a patient who seems to have persistent lung and intestinal symptoms and low grade fever. Please advise also as to the use of vaccines, serums and the like in treating this phase of the disease.

RALPH L MOORE MD Woodbury N J

**ANSWER**—It is difficult to answer these questions specifically without knowledge of how the lung and intestinal involvements manifest themselves. Lung complications are thought to be more common with paratyphoid A infections than with either typhoid or paratyphoid B. Bronchitis is almost as much a part of the disease as is the fever. The bronchitis usually subsides during the second week but may persist throughout the entire course. Bronchopneumonia and even lobar pneumonia are not infrequently encountered. These are not as a rule due to the paratyphoid bacillus but are caused by secondary invaders. Lung abscess and gangrene and pulmonary infarction occur infrequently and as the result of embolism. Pleurisy, either serofibrinous or suppurative, occurs somewhat more frequently. Pulmonary tuberculosis occasionally follows paratyphoid. It is doubtful that the disease initiates a tuberculous process, but it probably allows a latent tuberculous focus in the lung to become active.

The disease extensively involves the intestinal tract and this in itself may produce diarrhea, distention or abdominal pain. The organisms may be found in the bile in almost every case and it would seem that this would predispose the patient to cholecystitis, cholangitis and hepatitis, and yet these complications are rather rare. Invasion of the mesenteric lymph glands occasionally produces long continued abdominal pain and discomfort. Abscess of the spleen has been reported but this also is rare.

The question does not state how long the infection has lasted in this patient. Fever often persists a long time. It is thought that such patients have difficulty in developing a complete immunity to the disease. Relapse after a free period of ten days or two weeks sometimes occurs and the course of the relapse may be quite atypical. Any of the complications mentioned could produce a long continued low grade fever. This is particularly true of infected mesenteric glands, which might also produce abdominal distress and discomfort. Another possible obscure cause for fever is venous thrombosis. A favorite place for such thrombosis is the abdominal or pelvic veins or the veins of the leg. It is in such cases that the embolic phenomena are likely to occur.

There is no evidence to show that the use of vaccines or serums is of any value in the treatment of the acute phase of

the disease. Foreign protein shocks are sometimes used to call forth additional immune bodies but the use of foreign protein shocks may be disastrous in the presence of some of the possible complications in this case. Their use should not be considered unless their safety can be assured.

## ELEMENTS AND HUMAN BODY

*To the Editor*—How many positively known elements are there now? How many positively known elements are there that enter into the composition of the human body? Please give me the names of the last ten elements discovered and the approximate dates.

GEORGE C CROSTON MD Sapulpa Okla

**ANSWER**—At present eighty-eight different elements are recognized, if isotopes are not included. The last one, which is not named, was discovered in 1931. The other ten of the most recently found elements are helium (1895), neon (1898), krypton (1898), xenon (1898), radium (1898), lutecium (1907), hafnium (1923), radon (1925), rhenium (1925) and thulium (1926). The elements found in protoplasm which are known to be of biologic value are hydrogen, carbon, nitrogen, sulfur, oxygen, phosphorus, iron, copper, zinc, manganese, sodium, potassium, calcium, magnesium, chlorine, fluorine and iodine. Those of doubtful value in protoplasm are bromine, arsenic, aluminum, nickel, silicon, strontium, cobalt, selenium, vanadium and lead. Traces of many other elements may possibly be found in tissues, but their presence probably is accidental.

EFFECT ON BODY OF HIGH TENSION  
ELECTRIC CURRENT

*To the Editor*—1 If a person standing on the ground took hold of a wire conveying 66,000 volts would it be possible for him to live five or six hours? 2 Under these conditions what would be the probable condition of the body? 3 Would it be possible for a person to let go before death of a wire carrying 66,000 volts? Any references to the literature will be greatly appreciated.

M W HAWES MD Tullon Ky

**ANSWER**—1 It is difficult for a person to "take hold" of a wire carrying a current of 66,000 volts with bare hands. High tension currents usually arc before actual contact is made and muscular contraction will frequently cause the body to fall away from contact, though arcing once established may extend for long distances. Because of poor contact and its brief duration, efforts at resuscitation are more successful in high tension shocks than in any other type. It is possible but improbable that the victim might live five or six hours after the shock without artificial respiration. Recovery has been reported after continuous artificial respiration for eight hours.

2 The body should show electrical burns at least in regions of proximal contact. Heat burns from ignited clothing are frequently present.

3 See answer to question 1.

Specific data are available in MacLachlan, Wills. Electric Shock. Interpretation of Field Notes, *J Indust Hyg* 12 291 (Oct) 1930, 16 52 (Jan) 1934.

An extensive bibliography accompanies the paper on Effect of Electric Shock on the Heart, by Ferris L P, King, B G, Spence, P W, and Williams, H B. *Electrical Engineering* 55 498, 1936.

## PAROXYSMAL RAPID BREATHING

*To the Editor*—A man has spells of rapid respiration during which he breathes from fifty to sixty times a minutes for from a few minutes to as long as half an hour. He can tell when the spell is coming on by a feeling of faintness but he never faints. This condition is much worse in summer especially if he is in a stuffy room or working in the heat. The lungs and heart are normal. I would appreciate any information regarding other cases of a similar nature if any.

FREDERICK J VOLLMER MD Howard S D

**ANSWER**—This patient has what is hysterical or neurasthenic tachypnea. Such cases are well recognized. Ronald V Christie (Some Types of Respiration in the Neuroses, *Quart J Med* 4 427 [Oct] 1935) found that an important fraction of all patients classified as suffering from neuroses had respiratory complaints. These were easily recorded on the tracing of the metabolism apparatus. There were several types of respiration that which this patient has occasional sighing constant moderately rapid deep respirations and irregular breathing. In extreme cases the overventilation is continued until alkalosis and tetany occur. The induction of the tetany in such cases was found to be a requirement of the hysteria.

Associated neurotic symptoms are usually present, such as suffocation globus hystericus palpitation, coldness, tremor and sweating so that if the cardiac symptoms are pronounced the case is usually classified as neurocirculatory asthenia.



## ACRIFLAVINE IN GONORRHEA

To the Editor—While sojourning in England I chanced to visit the general hospital at Birmingham, England. They used intravenous acriflavine in more than 5,000 cases of acute gonorrhea with excellent results. I have been looking over *THE JOURNAL* but cannot find anything on this method. Will you inform me if there is any danger in its use 2 per cent from 2 to 4 cc. once every second day?

G. GLENN WHITE, M.D., San Diego, Calif.

ANSWER—If references in American literature concerning the use of intravenous acriflavine therapy in acute gonorrhea reflects its popularity in this country, it is definitely not in vogue. Acriflavine is one of the many dyestuffs discovered by Ehrlich to have bactericidal value. In the treatment of gonorrhea it has been given orally, subcutaneously and intravenously, and it has been used as an irrigation and as an instillation.

Edward Hughes and C. A. Birch (*Lancet* 2:633 [Sept. 16] 1933) reported using acriflavine in more than 100 cases of acute gonorrhea. They used the drug subcutaneously and found the injections to be painful. Intravenously 10 cc. of 1 per cent solution was injected three times a week. They state that its use may lessen the number of complications but in fifty cases found three cases of epididymitis and three cases of acute arthritis. The average duration of gonorrhea under this treatment was 116 days. As complications due to the drug, several thromboses of the vein occurred, two cases of jaundice and one generalized rash. Therefore the drug may cause liver damage and apparently does not control gonorrhea as well as more recent methods of therapy.

## ARTIFICIAL PENIS

To the Editor—About eight months ago a man had an amputation of the penis the amputation removing about one half of the shaft. Recovery has been uneventful and complete. He has been happily married for seven years to a highly sexed woman. There have been no pregnancies but no contraceptives have been used at any time. As a result of his condition and her sexual make-up they are at the present terribly unhappy and unless something can be done will undoubtedly separate. Are there any concerns that might make an artificial penis?

M.D., Michigan

ANSWER—Some dealers in surgical instruments are reported able to make an artificial penis with a belt around the abdomen. It is not unusual for attempts at intercourse to enlarge the organ and an extreme case, even worse than that described, is reported by Max Hühner in "The Diagnosis and Treatment of Sexual Disorders in the Male and Female, Including Sterility and Impotence" (Philadelphia, F. A. Davis Company, 1937, p. 113). It is also possible by artificial means to enlarge and develop the organ to a remarkable degree.

## MALARIAL BLOOD FROM PATIENT WITH DEMENTIA PARALYTICA FOR DEMENTIA PRAECOX

To the Editor—Would it be advisable to take blood from a patient with dementia paralytica who has undergone the malarial treatment just before the treatment has been stopped and inject it into a patient who has dementia praecox? Would there be any possibility of the spirochete being still viable after the hyperpyrexia treatment and would there be any probability of transmitting the organism to the new patient?

M.D., North Dakota

ANSWER—There would be only slight danger that the blood from the patient with dementia paralytica would contain *Spirochaeta pallida*. This is not because the fever of the malaria kills spirochetes but because the blood of patients who have dementia paralytica contains few if any spirochetes.

The injection of malarial blood from a patient with dementia paralytica into a nonsyphilitic patient is, of course, open to criticism in the case in question because malarial therapy has been of no particular value in the treatment of patients with dementia praecox.

## COITUS AFTER DELIVERY AND CURETTAGE

To the Editor—What is the proper interval after which coitus may be permitted following a normal delivery? After cesarean section? After curettage? What risk is involved in premature resumption of coitus in such cases?

M.D., California

ANSWER—Coitus should not be indulged in before the patient is examined about six weeks after a baby is born. The reasons for this are that, before six or eight weeks following childbirth, involution of the genital organs is usually not complete and a repair of lacerations or an episiotomy may not be completely healed before this time. Furthermore, there is some likelihood of starting a flow of blood from the uterus before this time and also presumably there may be some risk of intra-uterine infection from coitus. However, many couples indulge in coitus before a new-born baby is 6 weeks old and aside from

the discomfort experienced by the woman, serious consequences are seldom observed. The six weeks abstinence period applies to women who have had cesarean sections as well.

Following a curettage performed for diagnostic purposes in the absence of a pregnancy, there is no harm in indulging in coitus two weeks after the operation. However, if the curettage is performed for a condition of pregnancy such as therapeutic or incomplete abortion, it is best to have the patient avoid intercourse for at least four weeks to permit complete involution of the genitalia and to avoid the possibility of an intra-uterine infection.

## NECK INJURY AND COCCYGEAL PAIN—NERI TEST

To the Editor—Is there an anatomic reason or sympathetic nerve connection that would cause pain in the area of the coccyx when there is some injury to the cervical spine? A man struck the back of his head just above the axis. A short time afterward pain developed in the area of the coccyx although he never injured the lower part of his spine. This happened two years ago. The head neck and coccygeal pains virtually disappeared but lately the coccygeal pain has returned without any special cervical symptoms. A woman never had an injury of any kind. She has been noticing for the last month that on moving her neck or when sitting in a chair with the head forward she has pain in the area of the coccyx. Roentgenograms in both cases are negative.

M.D., New Jersey

ANSWER—There is no anatomic connection between the cervical region and the coccyx except through the cerebrospinal fluid. In the presence of arthritis with radiculitis, a spinal cord tumor or equina tumor, such acts as coughing, sneezing or straining at stool will increase the intraspinal pressure and aggravate the discomfort.

There is a test known by the name of Neri, which is called the nodding test, which is positive when simple nodding of the head increases intraspinal pressure and causes radicular pain.

## PRURITUS IN PREGNANCY

To the Editor—Can you give me information on the etiology and treatment of a generalized pruritus manifesting itself in the latter months of pregnancy? I have attended three sisters who have this condition in the latter months of pregnancy. The mother had similar trouble. There is no glycosuria. The itching which is intense at times is first noted in the feet and legs then becoming generalized. It is immediately relieved after delivery. It would seem that the mothers were allergic to the products of conception. It is not an urticaria and is not relieved by epinephrine.

M.D., North Dakota

ANSWER—The cause of generalized pruritus in pregnancy is not definitely known but it is presumably related to the toxemias. H. Vignes (*Gynecologic* 36:88 [Feb.] 1937) reported a series of forty-one cases of pruritus vulvae during pregnancy and fourteen cases of extragenital pruritus associated with gestation. He could not detect a common factor in these cases. Since the cause is not known, the treatment must be empirical. Patients may be relieved of their itching by local applications of equal parts of magnesium magna and olive oil. Oatmeal baths are also helpful in many cases. Three cups of cooked oatmeal in two quarts of water should be placed in a cloth bag securely tied at the top and placed in the bath water. These baths may be taken as often as desired.

## STRYCHNINE AND ALCOHOL

To the Editor—Is it true that the giving of strychnine with whisky is poison or vice versa? As one of the treatments for alcoholism is 0.3 to 0.5 grain (0.002 Gm.) of strychnine taken for ten days a good cure?

J. E. FRENCH, M.D., Holy Grove, Ark.

ANSWER—The conclusions of Dr. Norris's studies are absolutely not applicable to the ordinary or therapeutic use of strychnine, as well as of whisky, although they do apply to almost lethal quantities of these substances. Strychnine (0.002 Gm.) may be used safely in the treatment of alcoholism.

## NASAL SEPTUM OPERATION AND PACKING

To the Editor—In the answer to a question in *Queries and Minor Notes* in the March 26, 1938 issue entitled "Nasal Septum Operation Without Packing" I get the impression that you discourage the use of nasal packing in each nostril to allow nasal breathing because the inspired air is not moistened by the nasal mucosa. But 90 per cent of a leaf is less than none. The real cause of discomfort from packing the nose is from mouth breathing and the lack of moisture for so short a period as is noticed by the patient. If one insists on moist inspired air this can be managed by directing steam from an inhalator toward the nose. Realistically one blocks the nose so that he could not breathe. I think the wisest satisfied to forego the lack of moisture for twenty-four hours and allow nasal breathing.

EMANUEL ROTH, M.D., Flushing, N.Y.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

**ALABAMA** Montgomery June 28 Sec Dr J N Baker 519 Dexter Ave. Montgomery  
**ARKANSAS** Basic Science Little Rock June 4 Sec Mr Louis E Gebauer 701 Main St Little Rock *Medical (Regular)* Little Rock June 9 10 and Nov 3 4 Sec, State Medical Board of the Arkansas Medical Society Dr L J Kosminsky Texarkana *Medical (Eclectic)* Little Rock June 21 Sec Dr Clarence H Young 1415 Main St Little Rock

**CALIFORNIA** *Reciprocity* San Francisco May 11 Los Angeles July 11 San Francisco Sept. 14 and Los Angeles Nov. 16 *Written examinations* San Francisco June 27 30 Los Angeles July 11 14 and Sacramento Oct. 17 20 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

**CONNECTICUT** *Basic Science* New Haven June 11 *Prerequisite to license examination* Address State Board of Healing Arts 1895 Yale Station New Haven

**DELAWARE** Dover, July 12 14 Sec Medical Council of Delaware Dr Joseph S McDaniel 229 S State St Dover

**DISTRICT OF COLUMBIA** *Basic Science* Washington June 27 28 *Medical* Washington July 11 12 Asst Sec Commission on Licensure Mr Paul Foley 203 District Bldg Washington

**FLORIDA** Jacksonville June 13 14 Sec Dr William M Rowlett Box 786 Tampa

**GEORGIA** Atlanta, June Joint Sec State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

**ILLINOIS** Chicago June 28 July 1 and Oct. 18 20 Superintendent of Registration Department of Registration and Education Mr Homer J Byrd Springfield

**INDIANA** Indianapolis June 21 23 Sec Board of Medical Registration and Examination Dr J W Bowers 301 State House Indianapolis

**KANSAS** Kansas City June 7 8 Sec Board of Medical Registration and Examination Dr J F Hassig 905 N 7th St Kansas City

**KENTUCKY** Louisville June 8 10 Sec State Board of Health Dr A T McCormack 620 S 3rd St Louisville

**MARYLAND** *Medical (Regular)* Baltimore June 21 24 Sec Dr John T O'Mara 1215 Cathedral St Baltimore *Medical (Homeopathic)* Baltimore June 21 22 Sec Dr John A Evans 612 W 40th St Baltimore

**MICHIGAN** Ann Arbor and Detroit June 13 15 Sec Board of Registration in Medicine Dr J Earl McIntyre 202 3 4 Hollister Bldg Lansing

**MISSISSIPPI** Jackson June 22 23 Asst Sec State Board of Health Dr R N Whitfield Jackson

**MISSOURI** St Louis June 2 4 Director Medical Licensure Dr H S Gove State Capitol Bldg Jefferson City

**NEBRASKA** *Basic Science* Omaha May 3 4 *Medical* Omaha June 8 9 Dr Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

**NEVADA** Carson City May 2 Sec Dr John E Worden Capitol Bldg Carson City

**NEW JERSEY** Trenton June 21 22 Sec Dr James J McGuire 28 W State St Trenton

**NEW YORK** Albany Buffalo, New York and Syracuse June 27 30 and Sept 19 22 Chief Professional Examinations Bureau Mr Herbert J Hamilton 315 Education Bldg Albany

**NORTH CAROLINA** Raleigh June 13 Sec Dr B J Lawrence 503 Professional Bldg Raleigh

**NORTH DAKOTA** Grand Forks July 5 8 Sec. Dr G M Williamson 4 1/2 S 3rd St Grand Forks

**OKLAHOMA** *Basic Science* Oklahoma City May 4 Sec of State Hon Frank C Carter State Capitol Bldg Oklahoma City *Medical* Oklahoma City June 8 9 Sec Dr James D Osborn Jr Frederick

**OREGON** *Basic Science* Corvallis July 16 and Portland Nov 19 Sec State Board of Higher Education Mr Charles D Bryne University of Oregon Eugene

**PENNSYLVANIA** Philadelphia and Pittsburgh July Sec Board of Medical Education and Licensure Dr James A Newpher 400 Education Bldg Harrisburg

**SOUTH CAROLINA** Columbia June 28 Sec Dr A Earle Booser 505 Saluda Ave Columbia

**SOUTH DAKOTA** July 19 20 Director of Medical Licensure Dr B A Dyar State Board of Health Pierre

**TEXAS** San Antonio June 20 22 Sec Dr T J Crowe 918 Mercantile Bldg Dallas

**VERMONT** Burlington June 15 17 Sec Board of Medical Registration Dr W Scott Nay Underhill

**VIRGINIA** Richmond June 22 24 Sec Dr J W Preston 30 1/2 Franklin Road Roanoke

**WISCONSIN** Milwaukee June 28 July 1 Sec Dr Henry J Gramling 2203 S Lytton Blvd Milwaukee

**WYOMING** Cheyenne June Sec Dr G M Anderson Capitol Bldg Cheyenne

#### NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL April 23 page 1393

#### Pennsylvania January Examination

Dr James A Newpher, secretary, Board of Medical Education and Licensure reports the examination held at Philadelphia Jan 4 8 1938 Twenty seven candidates were examined 25 of whom passed and 2 failed The following schools were represented

School	PASSED	Year Grad
University of Georgia School of Medicine	(1934)	
State University of Iowa College of Medicine	(1930)	
University of Maryland School of Medicine and College of Physicians and Surgeons	(1936)	
University of Minnesota Medical School	(1936)	
Creighton University School of Medicine	(1936)	
Columbia University College of Physicians and Surgeons	(1933)	(19 4)

New York Univ University and Bellevue Hospital Med College	(1934)	
Eclectic Medical College Cincinnati	(1936)	
Ohio State University College of Medicine	(1936)	
Jefferson Medical College of Philadelphia	(1935)	
Temple University School of Medicine	(1935)	
University of Pennsylvania School of Medicine	(1935 2)	(1936)
Woman's Medical College of Pennsylvania	(1936)	
Vanderbilt University School of Medicine	(1932)	
Marquette University School of Medicine	(1937)	
University of Toronto Faculty of Medicine	(1921)	(1935)
McGill University Faculty of Medicine	(1935)*	
Medizinische Fakultät der Universität Wien	(1935)*	
Regia Università degli Studi di Padova Facoltà di Medicina e Chirurgia	(1935)*	
Licentiate of the Royal College of Physicians of the Royal College of Surgeons Edinburgh and of the Royal Faculty of Physicians and Surgeons Glasgow	(1936)	
Université de Genève Faculté de Médecine	(1935)	

School	FAILED	Year Grad
College of Physicians and Surgeons of Baltimore		(1904)
Medizinische Fakultät der Universität Wien		(1936)

Eight physicians were licensed by reciprocity and seven physicians were licensed by endorsement on January 4 and January 20 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Washington University School of Medicine	(1933)		Missouri
New York University University and Bellevue Hospital Medical College	(1927)		New York
University of Oregon Medical School	(1935)		Oregon
Temple University School of Medicine	(1936)		Ohio
University of Pennsylvania School of Medicine	(1927)		N Carolina
(1936) Louisiana			
University of Texas School of Medicine	(1924)		Texas
University of Virginia Department of Medicine	(1934)		Virginia

School	LICENSED BY ENDORSEMENT	Year Endorsement	Grad of
Georgetown University School of Medicine	(1935)	(1936)	N B M Ex
Northwestern University Medical School	(1933)	(1933)	N B M Ex
Johns Hopkins University School of Medicine	(1934)	(1934)	N B M Ex
Harvard University Medical School	(1933)	(1933)	N B M Ex
University of Pennsylvania School of Medicine	(1935)	(1935)	N B M Ex
University of Vermont College of Medicine	(1931)	(1931)	N B M Ex

\* License withheld pending completion of foreign credentials

## Book Notices

Reports on Chronic Rheumatic Diseases Being the Third Annual Report of the British Committee on Chronic Rheumatic Diseases Appointed by the Royal College of Physicians Number Three Edited by C W Buckley MD FRCP Cloth Price 10s 6d \*3 50 Pp 131 London H K Lewis & Co Ltd New York Macmillan Company 1937

This volume of reports, the third offered by the British committee reviews recent investigations on joint disease and offers a critical survey of the present status of various forms of therapy Throughout the reports there is in general a clear differentiation between that which is known and that which is unproved

In a sane article on vaccines and rheumatoid arthritis, Okell discusses the rationale underlying vaccine treatment He points out that it is not reasonable to treat with vaccine a disease the cause of which is unknown

Reviewing the use of sympathectomy in arthritis, Learmonth finds relief of pain to be the most constant result, but the cause of the relief is not known An article on roentgen therapy in chronic arthritis contributed by Kahlmeter, gives a review of the results in the experience of other workers and of his own results in 4,000 cases The most suitable types of cases and the limitations of the method are discussed The evidence for the possible association of vitamin deficiencies as precipitating factors in rheumatic diseases is surveyed by Race in a valuable article on vitamins and rheumatic diseases Two cases of neutrophil leukopenia with enlargement of the liver and spleen in rheumatoid arthritis are reported by Collins Recent studies on the changes produced in joints by hypercalcemia on the serum calcium phosphorus and phosphatase in bone diseases on the deposition of colloidal matter in the reticulo-endothelial system about joints and on the incidence, characteristics and course of Still's disease are reviewed briefly by Moncreiff In a review of the recent results of chrysotherapy in arthritis, Tegner indicates the basis for his conclusion that this form of treatment is of benefit in rheumatoid arthritis in spite of the dangers of complications The summary of recent work on osteo-arthritis by Clarke presents briefly the factors that are responsible for the degenerative changes and the difficulties of treatment In an article on diet in arthritis Buckley reviews the results of the use of recently advocated diets An

excellent review of recent American investigations by Hench covers the observations in the various types of joint disease. In discussing the value of sodium salicylate in the treatment of gout, Jennings indicates the appearances necessary for a diagnosis of gout and presents the comparative results of sodium salicylate and cinchophen treatment. The possible dangers resulting from the administration of such commonly used drugs as acetophenetidin, aminopyrine and cinchophen are presented clearly by Archer and Discombe. Brief abstracts of articles from the Italian, French and German literature are given by Bach and Pether.

The book is of value to all interested in present lines of investigation in joint disease and in the evaluation of various forms of treatment.

**Tuberkulose. Ein Fortbildungskursus der Berliner Akademie für ärztliche Fortbildung im Tuberkulosekrankenhaus der Stadt Berlin "Waldhaus Charlottenburg".** Herausgegeben von H. Ulrich, ärztlicher Direktor des Waldhauses Charlottenburg und O. Koch, Prosektor am Waldhaus Charlottenburg. Unter Mitarbeit von G. Ballin et al. Paper. Price 6.60 marks. Pp. 147 with 42 illustrations. Berlin: Julius Springer 1937.

In this booklet the fundamentals of the pathology, epidemiology, diagnosis and treatment of the tuberculous lesions located in the various organ systems of the body are given in a short and precise manner. The theory of Ranke and its subsequent evolutions are discussed and chapters dealing with the influence of hereditary and constitutional factors, with the effect of associated diseases, age and pregnancy, are included. Pathologic, microscopic and serologic examinations and the results of other laboratory procedures such as blood counts, determination of the sedimentation rate, and tuberculin tests are evaluated. A chapter is devoted to the technic and usefulness of the functional test of the lung, with evaluation of the spirometric method. Tuberculosis in childhood, the indications and technic of collapse therapy and the indications for phrenic exeresis, thoracoplasty and pneumolysis are discussed. Separate chapters are devoted to tuberculosis of the larynx, bones, intestine and genito-urinary tract. The social problems, the problems of public health and effective tuberculosis prophylaxis are discussed. The printing of the book is well done, with excellent reproductions and sketches. While the book does not contain new points of view or original work, it will be a valuable addition to the library of the student, of the general practitioner and of the specialist as a source of quick orientation as to diagnosis and therapy.

**Organization, Strategy and Tactics of the Army Medical Services in War.** By T. B. Nicholls, M.B., Ch.B., Lieut. Colonel Royal Army Medical Corps. With a foreword by Lieut. General Sir James A. Hartigan, K.C.B., C.M.G., D.S.O., Director General Army Medical Services. Cloth. Price \$4. Pp. 372. Baltimore: William Wood & Company 1937.

The medical service in modern warfare has enormous duties to perform. It must not only treat the wounded and the sick but must provide for them food, clothing, shelter, warmth, pay, discipline and transportation. This book seems to deal with every problem that a medical officer in the field may encounter. It is based largely on experience in the World War. Some of the terms used pertain especially to the British army and its medical service. In modern warfare it is essential to estimate before a battle the size of the medical problem that will develop. Before the World War it was calculated that 6 per cent of the force engaged in any one battle would become casualties. This estimate was far exceeded in France, where, in some battles, 20 per cent of the forces engaged became casualties in the first forty-eight hours and 40 per cent by the end of the first week. Assuming the strength of a division to be 20,000, the medical service has to prepare to deal with from 4,000 to 8,000 casualties in each division. In one battle in the World War the advance information was to prepare to care for 20,000 casualties, there were actually 60,000, or the equivalent of three entire divisions. Estimating that seventy-eight trains are required to move one division, 234 trains would have been required to move this number of casualties, and these passengers are patients, most of whom have to be carried to the trains. There is another problem of the greatest importance involved in a task so huge. It has been said that the side which can produce a last 100,000 men will win a war. This last 100,000 may be in the hospitals ready, or nearly ready to be returned to duty. If the medical service is inefficient in returning men to

the front as soon as possible, that might have much to do with winning or losing a war. Cron, an Austrian general, previous to the World War devised a formula with which to estimate the casualties in modern warfare. The Cron formula, the author says, as applied to many of the battles in France, gave average results not far from the mark. Cron estimated that only three fifths of a total force would be engaged in actual fighting and that 10 per cent of them would become casualties, so his formula is that the total number of casualties will be 10 per cent of three fifths of the total force, or 6 per cent. There is nothing certain in war, and no one formula could possibly give an accurate forecast of the casualties. The author discusses other methods of estimating the number of sick for whom the medical service must provide. He tabulates the approximate casualties in many engagements in the World War and figures the percentage in relation to the total force. He discusses the various medical units and their organization from the front line back to the base. He gives supply tables for the various units, showing the personnel required and the equipment. He discusses the considerations that enter into the location of the main dressing station, taking up such details as how many splints to provide for each unit, and how many stretchers and operating lamps. There never seems to be a sufficient number of stretchers in any large engagement, there should be a reserve of at least 300 for every division. There are chapters on ambulance trains, general hospitals, hospital ships, convalescent depots, depots of medical stores, lines of communication, organization of the base, strategy and tactics, and examination and promotion in the medical service.

**Uric Acid in Blood and Urine.** By Knud Brøchner Mortensen. Paper. Price 9 Danish kroner. Pp. 269 with 58 illustrations. Copenhagen: Levin & Munksgaard 1937.

This book contains a comprehensive and critical review of methods for the determination of uric acid in blood serum and in urine. The author reports new methods of his own as well as suggestions for careful control of conditions in methods previously reported. A large series of analyses gives comparative results of the commonly used methods and of his methods. Studies of serum and the uric acid content of the urine for normal persons were performed; the results of which are reported in detail. Uric acid clearance studies, total daily excretion of uric acid and the effect of diet and of diuretics are all studied in detail. The mechanism of uric acid excretion is considered. All persons used for study were free from any disturbance of uric acid metabolism. The bibliography of nearly 400 references indicates the comprehensive nature of this book, which should be a useful work of reference for persons interested in metabolism of uric acid or in methods for its determination.

**The Cerebrospinal Fluid.** By H. Houston Merritt, M.D., Assistant Professor of Neurology, Harvard Medical School, Boston, and Frank Fremont Smith, M.D., with a foreword by James B. Ayer, M.D. Cloth. Price \$5. Pp. 333 with 17 illustrations. Philadelphia & London: W. B. Saunders Company 1937.

The literature on cerebrospinal fluid has become so voluminous in the last few years that it is hard for the average physician to get a clear picture of what is practical and what is theoretical. A book on the subject particularly by men who have spent many years in studying the fluid is therefore of great value. Both authors have had an enormous experience in the study of cerebrospinal fluid and have kept an accurate record of their cases so that they can tell by actual numbers how many specimens of fluids in a certain disease showed changes and how many did not. The book covers almost every neurologic condition known. The general practitioner as well as the neurologist can therefore use the book with profit. There are a few criticisms, however, that might be leveled at the book. The most important of which is that the authors have been too set in their opinions. As a result they omit mention of some pertinent information. For instance in their admirable discussion of cerebrospinal fluid pressure they state that they use a certain water manometer but fail to mention the fact that there are other manometers on the market which are considered efficacious. While they devote some space to the comparison of the measurement of pressure by mercury and water manometer and justify the use of the latter they do not mention that mercury and other manometers may be

used. They likewise fail to evaluate a good many tests that have been popular. For instance, no mention is made of the tryptophan test for tuberculous meningitis. Possibly the authors do not consider it reliable, but in a book on the subject one would expect some discussion as to its value or at least some mention of it. With regard to the Kahn test the authors do state their opinion that "most serologists are agreed that the various precipitation tests do not give as satisfactory results in the cerebrospinal fluid as in serum" (p. 61), but one might doubt the accuracy of this statement. In discussing the hydrogen ion concentration of the cerebrospinal fluid the authors submit a 1925 reference on the  $p_H$  of normal cerebrospinal fluid, whereas this was pointed out as early as 1917. This, however, may be ascribed to an oversight. Throughout the book a good deal of space is devoted to topics on which the authors have done special work. While this is forgivable it results in a disproportionate emphasis on those subjects as compared to other subjects in which they did comparatively less work. The book fulfils the one purpose of the authors (as expressed in the foreword) to present facts, but it does not fulfil the other purpose to explain why some changes take place. In their desire to be practical the authors have at times neglected the theoretical or rather philosophic outlook of cerebrospinal fluid. As a whole, the book is practical and authoritative.

**Textbook of Experimental Surgery** By J. Markowitz, M.B., Ph.D., M.S. in Exp. Surg. Research Associate, Department of Physiology, University of Toronto. Cloth. Price \$7. Pp. 527 with 330 illustrations. Baltimore: William Wood & Company, 1937.

Written in brief yet discursive and pleasant style, this short volume comprises a rapid introduction to the field of experimental surgery. The author maintains that the practical lessons in technique and physiology learned first hand on the laboratory animal is the surgeon's greatest asset. He asserts that many clinicians have much to learn of practical physiology of the "Bernardian" type and that less emphasis might be laid on highly theoretical chemical effects such as surround the problem of insulin. He lays much stress on actual surgical technique, detailing much space, for example, to the choice and method of suturing. Included also is a chapter on the antiseptic movement, in which the author advises constant vigilance against the fanatics and the ill informed. The chief virtue of this book lies in the fact that the author works from the assumption that his readers know little about practical surgery. Therefore he submits physiologic explanations for even the most simple steps in any procedure. This, coupled with the patient detail in illustration, lends much value to the short textbook, which should be appreciated especially by the postgraduate student in surgery.

**Arteriovenous Aneurysm. Abnormal Communications Between the Arterial and Venous Circulations** By Emil C. Holman, A.B., B.S., M.D., Professor of Surgery, Stanford University Medical School, San Francisco, California. Cloth. Price \$6. Pp. 244 with 79 illustrations. New York: Macmillan Company, 1937.

This monograph, dealing with arteriovenous aneurysms of various types, is a splendid example of the value of experimental work in the clarification of clinical problems. Details of laboratory procedures for the establishment of arteriovenous fistula in animals are given and the physiologic reasons for development of the various symptoms are explained in detail. By various experiments the author proves that the sudden drop in blood pressure following establishment of an arteriovenous aneurysm is due to an increase in blood volume and that recovery of the pressure to normal after closure of the fistula is enhanced by dilution of the blood by incoming plasma. The cardiac output is found to be increased as much as twofold in arteriovenous fistula. The cardiac hypertrophy which results after a large fistula has been present for some time is discussed in detail. The rapid subsidence of this hypertrophy following repair (as depicted by x-ray and clinical means) is readily explainable on the basis that the cardiac load imposed by the fistula has been eliminated. Methods of repair of the accessible fistulas after the principle laid down originally by Matas are discussed in detail. Sufficient data are presented to prove rather conclusively the advocacy of ligating the vein simultaneously with the artery whenever ligation is the procedure of choice. The various procedures for the treatment of intracranial fistulas

are discussed in detail. This portion of the monograph is particularly valuable because the author has clearly demonstrated that the fatal results of immediate ligation of the internal carotid artery can be eliminated by trial ligation and digital compression. Important points in the treatment of congenital fistulas, such as the elimination of all the fistulous channels, are properly emphasized. Two separate chapters are devoted to a consideration of patent ductus arteriosus and congenital intracardiac fistulas. The last seventy-five pages consist of protocols of patients and animal experiments dealing with the various types of fistulas. An adequate bibliography is an attractive feature of the monograph. It is doubtful whether the reader will find the various features of arteriovenous fistulas discussed elsewhere in the medical literature with as much clarity and consideration of the physiologic principles involved. The book will therefore be of great value to the neurologic surgeon as well as to the general surgeon even though such fistulas are relatively uncommon. The publishers have chosen a good grade of paper and type, which are conducive to easy reading.

**Medical Uses of Radium. Summary of Reports from Research Centres for 1936.** Medical Research Council Special Report Series No. 226. Paper. Price 1s. Pp. 41 with 6 illustrations. London: His Majesty's Stationery Office, 1937.

This report continues the accounts of fourteen similar earlier reports on the use of radium under the supervision of the Medical Research Council. It discusses results of purely experimental work as well as of the treatment of cancer in a number of hospitals under the direction of local committees. There are sections on cancer of the breast, the uterus, the mouth, nasopharynx, larynx and esophagus and the rectum, on sarcoma, on teleraadium therapy and on nonmalignant conditions. The report will interest particularly specialists in the treatment of cancer.

**Phenomenon of Local Tissue Reactivity and Its Immunological Pathological and Clinical Significance** By Gregory Schwartzman, M.D., Bacteriologist, Mount Sinai Hospital, New York. Foreword by Jules Bordet, M.D. Cloth. Price \$7.50. Pp. 461 with 68 illustrations. New York: Paul B. Hoeber, Inc., 1937.

Schwartzman has rendered an important service to medical science in bringing together and correlating in monograph form the extensive studies on his phenomenon of local skin reactivity (Schwartzman phenomenon) accumulated during the past decade. The first ten of the thirteen chapters of the volume deal with laboratory investigative aspects of the phenomenon, while in the last three chapters the author attempts to correlate his phenomenon with related phenomena in pathology and immunity, discussing particularly the significance of the phenomenon and its clinical application. The latter is in the experimental stage, and definite procedures of diagnostic and curative value, based on the Schwartzman phenomenon, are yet to be established. The phenomenon is of dramatic interest. If a small amount of bacterial filtrate is injected into the skin of a rabbit, a slight inflammatory reaction will appear in the area of injection in about twenty-four hours. If at about that time the animal is injected intravenously with the same bacterial filtrate or with some other bacterial filtrate or indeed with reagents of non-bacterial origin the mild inflammatory area in the skin undergoes hemorrhagic necrosis in a few hours. The preparatory skin injection must be made with a substance of bacterial origin while the 'provocative' intravenous injection does not have to be made with a substance of bacterial origin. Schwartzman argues that he is dealing in this phenomenon with a new category of toxins and antitoxins and that his phenomenon is entirely distinct from the phenomena of anaphylaxis and tissue hypersensitiveness. In connection with the Arthus reaction he states on page 352. All the evidence considered together sharply differentiates the phenomenon of local tissue reactivity described in this monograph from the Arthus phenomenon. Yet forty pages later (p. 391) he states that the necrotic and hemorrhagic reactions of the Arthus phenomenon in man belong at least in part to the domain of the phenomenon of local tissue reactivity. Even though one may not agree with Schwartzman's interpretation of his phenomenon, the fact remains that the monograph is a provocative contribution to the medical sciences.

**A Manual of Obstetrics** By Thomas Watts Eden MD CM FRCP Consulting Obstetric Physician to Charing Cross Hospital and Eardley Holland MD BS FRCP Obstetric and Gynecological Surgeon The London Hospital Eighth edition Cloth Price 24s Pp 765 with 420 illustrations London J & A Churchill Ltd 1937

The appearance of the eighth edition of this standard textbook of obstetrics is proof of its popularity. Many chapters have been completely rewritten, others have been changed, and all of the material has been brought abreast of the times. Many new illustrations help to clarify the text and make the book more instructive to students and practitioners. The logical arrangement of the subject matter into eight parts is conducive to greater usefulness as a teaching textbook. All the subjects of interest in this special field are covered completely but rather briefly, thereby making it possible to confine the material within the limited number of small pages. The treatments suggested are for the most part conservative and represent accepted opinion. A few key references are listed at the end of each chapter, which with few exceptions pertain largely to the English literature. A unique innovation consists of brief summaries after most of the references. There is always room for differences of opinion with regard to certain ideas of practice. Thus, one may take specific exception to the discussion on manual dilation of the cervix. This method, like accouchement force, should no longer be considered good practice. The cervix cannot be regarded as an elastic ring which can be stretched like a rubber band. Too many grave sequelae have followed this apparently simple procedure. In the treatment of eclampsia, saline infusions are usually considered contraindicated and dangerous. Present knowledge favors the use of hypertonic solutions of dextrose. Poulitces to the loins have fallen into complete therapeutic discard. The discussion on the treatment of placenta praevia is excellent and deserves commendation. The same may be said for the rational approach to the treatment of puerperal infection.

**Macleod's Physiology in Modern Medicine** Edited by Philip Bard Professor of Physiology Johns Hopkins University School of Medicine Baltimore et al Eighth edition Cloth Price \$8.50 Pp 1051 with 355 illustrations St Louis C V Mosby Company 1938

It has become increasingly difficult for any one man to write a comprehensive advanced textbook of physiology. In recognition of this fact, Professor Bard has enlisted the collaboration of eight colleagues in the preparation of this edition of a well established textbook. This destroys to some extent the individuality of any book but the student is unquestionably the gainer in that each section has been prepared with more care. In the preface the editor justifies the omission of the section on "The Physicochemical Basis of Physiological Processes" on the assumption that the student will have become familiar with this material in other courses—an assumption of questionable validity. Experience with large numbers of students shows that most of them need ready at hand some reference to fundamental laws and processes. While the text throughout is written in clear, lucid style, students are inclined to object that one must read too much material in order to garner a few facts. Objection is made also to the extensive use of small type, which, the editor explains, covers four kinds of material: "descriptions of methods, data judged to be of secondary interest to the student but necessary for a full understanding of the subject under discussion, treatment of matters that are at present largely controversial, and finally considerations which are chiefly of clinical interest." The illustrations are well selected and well integrated with the text. However, as in the previous edition, reproductions of photographs are often inexcusably poor. This is the most serious defect in the book. Of the textual material perhaps the section on metabolism and nutrition is the least attractive. Particularly the chapters on vitamins, on mineral metabolism and on nutrition are, in view of the importance these subjects have come to assume more recently, unjustifiably conventional and sketchy. The section on the endocrines is greatly improved over that appearing in the previous edition, but even here there is something of a conventionalized approach which one scarcely expects in a newly written work. The section on respiration seems to represent perhaps the best presentation of subject matter. Especially to

be commended is the chapter on internal respiration, as it carries material that has not been so adequately discussed in any other work. The discussion of auditory and labyrinthine mechanisms seems unduly limited. Aside from the matters mentioned, the proportionate allotment of space to the various sections seems well balanced. Thorough acquaintance with the text as a whole will give the student a well balanced conception of the important fundamentals of physiology.

**Creative Camera Art** By Dr Max Thorek FRPS FRSA KLB President Photographic Society of America Cloth Price \$3.50 Pp 156 with illustrations Canton Ohio Fomo Publishing Company 1937

A relatively simple way of making an acceptable photograph from a snapshot is first to have an enlargement made. On this the shadows may be strengthened and dark areas added by means of a pencil. A contact print made from the enlargement will have the black and white in reverse, so that pencil marks will appear light when the final print is made. Thus it is possible during the process to add both light and shade where they will do the most good. Dr Thorek describes the technique of picture making and discusses the creative side up to the point at which the individual worker must think for himself. Numerous illustrations show the effects that can be introduced at different stages of the paper negative process, and there are magnificent reproductions of portrait studies, genre and landscapes.

**Diagnostiques urgents Abdomen** Par H Mondor professeur agrégé à la Faculté de Paris Fascicules 1 et 2 Third edition Cloth Price 210 francs per set Pp 524, 527 1119 with 248 illustrations Paris Masson & Cie 1937

The popularity of this treatise on diagnosis of acute conditions within the abdomen is best proved by the fact that only four years elapsed between the second and the present edition. Contrary to the prevailing custom the book has been only slightly enlarged—seventy-three pages more than the second edition, what is still more surprising, the number of illustrations has been cut, apparently without detracting from the value of the book. A cursory perusal of the voluminous two parts failed to reveal any signs of a considerable revision. The colloquial style and numerous case histories are responsible for the large size of the work, certainly an undesirable feature of a book of this type, which should serve as a guide in emergency cases. It seems that not enough attention has been paid to the laboratory studies, frequently invaluable in the differential diagnosis of acute abdominal conditions. Such minor criticisms do not detract from the value of this exhaustive and comprehensive work, which should be of interest to every man practicing abdominal surgery.

**Eighth International Congress of Military Medicine and Pharmacy and Meetings of the Permanent Committee** Brussels Belgium June 27 July 3 1935 Report of Captain William Seaman Bainbridge M C F Member of the Permanent Committee for the Delegation of the United States of America Department of State Publication 1069 Conference Series Cloth Price \$1 Pp 114 with 3 illustrations Washington D C Supt of Doc Government Printing Office, 1937

The late King Albert of Belgium and Queen Elizabeth created the first International Congress of Military Medicine and Pharmacy in 1921. Since then there have been meetings every second year in various large cities in Europe, at which representatives of numerous countries have met to study the problems of military medicine and surgery and to concern themselves with the alleviation of suffering in possible future wars. Captain William Bainbridge, U S Naval Reserve, retired, who has attended each of the eight conferences as an official delegate of the United States government or unofficially at his own expense, has reported each one of these congresses. In the present report there is a foreword by Charles R Reynolds Surgeon-General, U S Army. The congress is organized in two main sections: (1) the International Office of Medical Military Documentation and (2) the Medico Legal Commission, which is forming an association for the international protection of humanity, with headquarters at Monaco. A list is given of the official delegates to the eighth congress from the various countries represented. There were ten official delegates from the United States. The remainder of the small volume comprises the report of the various meetings and abstracts.



the addresses Among the subjects discussed were the determination of fitness for the different specialties in armies, navies and air forces, post-traumatic conditions of the abdomen, the standardization of methods of analysis of foodstuffs for military use, buccodental services at the front, principles of organization and functioning of medical services in mountain warfare, and the functions of the administrative medical services of the armies, navies and air forces A comparatively brief account of this congress was published in *THE JOURNAL*, Oct 16, 1937, page 1292, in the Belgium letter

**Synopsis of Obstetrics and Gynecology** By Aleck W Bourne M.A. V.B. B.Ch. Consulting Obstetric Surgeon Queen Charlotte's Hospital London Seventh edition Cloth Price \$4 Pp 452 with 175 illustrations Baltimore William Wood & Company 1937

Bourne's seventh revision draws much of the material from standard textbooks Because of his familiarity with the essential needs of the student and along with his vast clinical experience, he has been able to incorporate this material into a clear, concise, handy volume that is presented in an easily readable manner This book is also intended for setting forth the significant points in reviewing for examinations in obstetrics and gynecology The chapters covering the anatomy and physiology of pregnancy are concise, though not at the expense of clarity The toxemias of pregnancy are discussed clearly and with modern conceptions Eclampsia is treated along definitely conservative lines The chapters on postpartum hemorrhage and puerperal infection are commendatory The book should contain more illustrative diagrams The application of forceps is described only with the patient in the left lateral position For the benefit of the American readers of this book, it might have been well to give a description of forceps application with the patient in the dorsal position The estrogenic and gonadotropic factors and their relation to menstruation, puberty, the menopause and menstrual disturbances are gone into pointedly, with many practical suggestions The book is well correlated and can be wholeheartedly recommended for both the student and the practitioner The author has well succeeded in his effort

**The Subnormal Mind** By Cyril Burt M.A. D.Sc. Professor of Psychology University of London University of London Heath Clark Lectures 1933 delivered at the London School of Hygiene and Tropical Medicine Second edition Cloth Price \$5 Pp 372 New York & London Oxford University Press 1937

Light lectures cover, in addition to a brief account of normal psychology, Burt's interpretations of the mentally deficient, the dull or backward child, the delinquent and the neurotic school child The neuroses are dealt with, in general, in two more lectures The book is a summary of abnormal psychology as visualized by a psychologist of wide training and a leader in his field The psychiatrist, although differing with some of the views expressed, will find much of value in this comprehensive but somewhat discursive book A second edition has been called for in two years It differs from the first in minor corrections and the addition of free association test material in the appendix

**A Primer for Diabetic Patients An Outline of Treatment for Diabetes with Diet Insulin and Protamine Zinc Insulin Including Directions and Charts for the Use of Physicians in Planning Diet Prescriptions** By Russell M Wilder M.D. Ph.D. F.A.C.P. Professor and Chief of the Department of Medicine of the Mayo Foundation University of Minnesota Sixth edition Cloth Price \$1.75 Pp 191 with 4 illustrations Philadelphia & London W. B. Saunders Company 1937

The present edition of this manual for patients was issued primarily because of its need with regard to treatment with protamine zinc insulin It gives the patient and the physician a good general outline as to how to proceed in changing from old to new insulin In this respect it is a valuable help and guide The field is well covered and the manual as a whole gives a good and reasonable type of information to the patient At the end of each chapter there is a series of questions covering the chapter and in order to answer these the patient has to have the grasp of the contents This is a good type of instruction, not the ordinary parrot type of learning This being the sixth edition the author has had ample opportunity to make changes in the text so that the present volume is the crystallization of the subject as applied in practice

**The Structure and Composition of Foods** By Andrew L Winton Ph.D. and Kate Barber Winton Ph.D. Volume III Milk (Including Human) Butter Cheese Ice Cream Eggs Meat Meat Extracts Gelatin Animal Fats Poultry Fish Shellfish Cloth Price \$8 Pp 524 with 11 illustrations New York John Wiley & Sons Inc London Chapman & Hall Limited 1937

In this volume, which is devoted exclusively to foods of animal origin, the Wintons have continued their excellent summaries of the microscopic structure and the chemical composition of foods The present volume takes up milk and its products, eggs, meat, poultry, fish and shell fish In addition to a discussion of the chemical composition and properties of each food and each component, there are brief but thorough discussions of the influence of various methods of production and manufacture on the composition of foods Copious references to the original literature and a suitable index enhance the usefulness of the book This volume will take its place with the others in the series as an indispensable reference work for those who deal with the technical aspects of foods

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Workmen's Compensation Act Dermatitis Following Abrasion an Accidental Injury**—In the course of his employment in a woolen mill the workman repaired machinery and from time to time received bruises and abrasions on his hands He became incapacitated by reason of a dermatitis caused in the opinion of a physician, by oil, grease, dirt and bacteria coming in contact with such an abrasion on one of his hands The industrial accident commission of Maine awarded him compensation under the workmen's compensation act and his employer appealed to the Supreme Judicial Court of Maine

The employer's defense to the claim for compensation seemed to have been based on the theory that because the workman was unable to tell with exactness just when the particular abrasion was suffered and because such slight injuries were received almost daily and were dismissed by the workman when received as trifling, it was therefore a mere incident of his employment and not an "accident" within the meaning of the Maine workmen's compensation act The Supreme Judicial Court, however, believed that there was sufficient evidence to warrant the industrial accident commission in finding that the dermatitis was caused by the entry of bacteria through an abrasion on his hand That the abrasion itself was of such small consequence that the workman did not remember the exact time when it was received was unimportant, in the opinion of the court In arriving at its conclusion the court cited *Brutons Limited, v. Turvey*, A.D. 1905 230, an English case in which compensation was awarded for the death of an employee from anthrax, the germ of which entered his system through an abrasion in the corner of his eye The court also cited *Brodin's Case*, 124 Me 162, 126 A 829, in which a workman who contracted typhoid fever from drinking contaminated water furnished by his employer was awarded compensation The court in the present case could see no distinction between the entry of typhoid bacteria through the mouth as in *Brodin's case*, of the bacillus of anthrax as in the English case, and the case under consideration Accordingly the award of compensation in favor of the workman was affirmed—*Beaumont's Case (Me)*, 193 A 923

**Malpractice Proof of Causal Relation Between Injury and Alleged Malpractice Necessary**—The plaintiff injured in an automobile accident on the evening of March 30, 1935, was taken to a hospital in a semiconscious and partially paralyzed condition The defendant as attending physician made it was alleged only a casual examination of the plaintiff stating that he was merely shaken up Thirty six hours later the defendant permitted the plaintiff to be removed from the hospital at which time the relationship of physician and patient seems to have ended Thereafter on April 12, the plaintiff was taken to another hospital where there was discovered a dis-

location of the fifth cervical vertebra that had resulted in a compression fracture of the sixth cervical vertebra and a fracture of the pedicle lamina arches. The then attending physician undertook by traction to repair the damage but, owing to the condition and location of the injury, found it was impossible to do so. Subsequently the plaintiff brought suit against the defendant for malpractice. At the conclusion of the plaintiff's evidence the trial court entered a judgment of nonsuit and the plaintiff appealed to the Supreme Court of North Carolina.

To justify the submission of a malpractice suit to a jury, said the court, there must be evidence tending to show that the patient was injured, that the physician was negligent in the manner in which he examined and treated his patient or in his failure to render proper treatment, and that such negligent conduct was the proximate cause of the injury sustained by the patient. The burden rested on the plaintiff to prove a causal connection between his injury and the alleged negligent conduct of the defendant. All the medical expert witnesses agreed that it is risky to subject a patient to a thorough examination when he is under severe shock and that the attending physician must exercise his best judgment in determining when it is safe to make such examination. No witness testified that the plaintiff's condition was aggravated by the delay in efforts to reset the bone or that the inability to reset the bone was due to any condition arising from the delay. The evidence disclosed that the use of modern equipment and methods by trained and skilful physicians at a time when callus had not developed sufficiently to interfere with proper setting of the bone had availed nothing. The character and location of the fracture were such that proper traction could not be successfully used. Unfortunately, the plaintiff suffered an injury that could not be relieved except by the performance of a most dangerous operation. The plaintiff's unfortunate condition, in the opinion of the court, did not result from any negligent conduct of the defendant. The judgment of nonsuit was therefore affirmed—*Gower v Davidson* (N C), 193 S E 28.

#### Contraceptive Devices Importation of Vaginal Pessaries—Section 305(a) of the Tariff Act of 1930 provides, in part

All persons are prohibited from importing into the United States from any foreign country any article whatever for the prevention of conception or for causing unlawful abortion.

The claimant, a physician of New York specializing in gynecology, imported a package containing 120 vaginal pessaries from Japan. The United States filed a libel for the forfeiture of the package, contending that its importation was prohibited by the section of the Tariff Act of 1930 quoted. The United States district court for the seventh district of New York dismissed the libel (13 F Sup 334) and the government appealed to the circuit court of appeals, second circuit.

The question before the court was whether physicians who import vaginal pessaries in order to use them for the health of their patient are excepted by implication from the literal terms of the tariff act. In the opinion of the court, the act embraces only such articles as Congress would have denounced as immoral if it had understood all the conditions under which they were to be used. The design of the act was not to prevent the importation, sale or carriage by mail of things which might intelligently be employed by conscientious and competent physicians for the purpose of saving life or promoting the well-being of their patients. While it is true, said the court, that the policy of Congress has been to forbid the use of contraceptives altogether if the only purpose of using them is to prevent conception in cases in which it would not be injurious to the welfare of the patient or her offspring, it is going far beyond such a policy to hold that abortions, which destroy incipient life, may be allowed in proper cases, and yet that no measures may be taken to prevent conception even though a likely result would be to require the termination of pregnancy by means of an operation. It seemed to the court unreasonable to suppose that the national scheme of legislation involves such inconsistencies and requires the complete suppression of articles the use of which in many cases is advocated by such a weight of authority in the medical world. The court, therefore, affirmed the decree of the district court dismissing the libel—*United States v One Package* 86 F (2d) 737.

## Society Proceedings

### COMING MEETINGS

- American Medical Association San Francisco June 13-17 Dr O M We  
535 North Dearborn St Chicago Secretary
- American Academy of Pediatrics Del Monte Calif June 9-11 D  
Clifford G Grulee 636 Church St, Evanston Ill Secretary
- American Academy of Tuberculosis Physicians San Francisco J  
17-18 Dr Arnold Minning 638 Metropolitan Bldg Denver Secretary
- American Association of Genito-Urinary Surgeons Atlantic City N J  
May 24 Dr Henry L Sanford, 1621 Euclid Ave Cleveland  
Secretary
- American Association of Industrial Physicians and Surgeons Chic  
June 6-9 Dr Volney S Cheney Armour and Company, Union St  
Yards Chicago Secretary
- American Association of Medical Milk Commissions San Francisco  
June 13-14 Dr Paul B Cassidy, 2037 Pine St Philadelphia, Pa  
Secretary
- American Association of Pathologists and Bacteriologists Atlantic City  
N J May 3-4 Dr Howard T Karsner 2085 Adelbert Road Cleve  
land Secretary
- American Association of the History of Medicine Atlantic City N J  
May 2 Dr E J G Beardsley 1919 Spruce St Philadelphia  
Secretary
- American Dermatological Association Del Monte Calif June 9-11 D  
Fred D Weidman 36 Hamilton Walk Philadelphia Secretary
- American Gastro-Enterological Association Atlantic City N J May 23  
Dr Russell S Boles 1901 Walnut St Philadelphia Secretary
- American Gynecological Society Asheville N C May 30-June 1 D  
Richard W Telande 11 East Chase St Baltimore Secretary
- American Heart Association San Francisco June 10-11 Dr Howard T  
Sprague 50 West 50th St New York Secretary
- American Laryngological Association Atlantic City N J May 24 D  
James A Babbitt 1912 Spruce St Philadelphia Secretary
- American Laryngological Rhinological and Otolological Society Atlanti  
City N J Apr 27-29 Dr C Stewart Nash 277 Alexander St  
Rochester N Y Secretary
- American Medical Women's Association San Francisco June 12-14 Dr  
Helen A Cary 1634 N E Halsey St Portland Ore Secretary
- American Neurological Association Atlantic City N J May 26 Dr  
Henry A Riley 117 East 72d St New York Secretary
- American Ophthalmological Society San Francisco June 9-11 Dr  
Eugene M Blake 303 Whitney Ave New Haven Conn Secretary
- American Orthopedic Association Atlantic City N J May 33 Dr  
Ralph K Ghormley 110 Second Ave S W Rochester Minn Secretary
- American Pediatric Society Bolton Landing N Y June 9-11 Dr Herb  
McCulloch 325 North Euclid Ave St Louis Secretary
- American Proctologic Society San Francisco June 11-13 Dr Curtice  
Rosser 710 Medical Arts Bldg Dallas Texas Secretary
- American Psychiatric Association San Francisco June 6-10 Dr W C  
Sandy State Education Bldg Harrisburg Pa Secretary
- American Radium Society San Francisco June 13-14 Dr F W  
O'Brien 465 Beacon St Boston Secretary
- American Rheumatism Association San Francisco June 13 Dr Letting  
T Swann 372 Marlborough St Boston Secretary
- American Society for Clinical Investigation Atlantic City N J May  
Dr J M Hayman Jr 2065 Adelbert Road Cleveland Secretary
- American Society of Clinical Pathologists San Francisco June 9-11 Dr  
A S Giordano 531 North Main St South Bend Ind Secretary
- American Surgical Association Atlantic City N J May 24 Dr  
Charles G Mixer 319 Longwood Ave Boston Secretary
- Association for the Study of Allergy San Francisco June 9-10 Dr J  
Harvey Black 1405 Medical Arts Bldg Dallas Texas Secretary
- Association for the Study of Internal Secretions San Francisco June  
13-14 Dr E Kost Shelton 921 Westwood Blvd Los Angeles  
Secretary
- Association of American Physicians Atlantic City N J May 33 Dr  
Hugh J Morgan Vanderbilt University Hospital Nashville Tenn  
Secretary
- California Medical Association Pasadena May 9-12 Dr F C Warnish  
450 Sutter Street San Francisco Secretary
- Congress of American Physicians and Surgeons Atlantic City N J May  
3-4 Dr John T King Jr 1210 Lutaw Place Baltimore Secretary
- Connecticut State Medical Society Groton June 1-2 Dr Crenshaw  
Barker 258 Church St New Haven Secretary
- District of Columbia Medical Society of the Washington May 4-5 Dr  
C B Conklin 1718 M St N W Washington Secretary
- Florida Medical Association Miami May 9-11 Dr Shaler Richards  
111 W Adams St Jacksonville Secretary
- Hawaiian Territorial Medical Association Honolulu May 20-22 Dr  
Douglas B Bell Dillingham Bldg Honolulu Secretary
- Illinois State Medical Society Springfield May 17-19 Dr Harold W  
Camp Lahl Bldg Monmouth Secretary
- Iowa State Medical Society Des Moines May 11-13 Dr Robert L  
Parker 3510 Sixth Ave Des Moines Secretary
- Kansas Medical Society Wichita May 9-12 Mr C G Munns 117  
West Sixth St Topeka Executive Secretary
- Louisiana State Medical Society New Orleans May 24 Dr P T  
Talbot 1430 Tulane Ave New Orleans Secretary
- Maryland Medical and Chirurgical Faculty of Baltimore Apr 26-27  
Dr Walter Dent Wise 1211 Cathedral St Baltimore Secretary
- Massachusetts Medical Society Boston May 31-June 2 Dr Alexander  
Begg 8 The Fenway Boston Secretary
- Missouri State Medical Association Jefferson City May 24 Dr E J  
Goodwin 634 N Grand Blvd St Louis Secretary
- National Tuberculosis Association Los Angeles June 20-23 Dr C  
J Hatfield 7th and Lombard Sts Philadelphia Secretary
- New Hampshire Medical Society Manchester May 1-18 Dr C  
New Metcalf 5 South State St Concord Secretary
- New Jersey Medical Society of Atlantic City May 17-19 Dr A  
Stahl 55 Lincoln Park Newark Secretary
- New Mexico Medical Society Santa Fe June 6-8 Dr L B C  
219 West Central Ave Albuquerque Secretary
- New York Medical Society of the State of New York May 9-11 D  
Peter Irving 2 East 103d St New York Secretary
- North Carolina Medical Society of the State of Pinebluff May 24 D  
T W M Long Roanoke Rapids Secretary
- North Dakota State Medical Association Bismarck May 16-18  
Albert W Skelcy 201 North Broadway Fargo Secretary

Ohio State Medical Association Columbus May 11 12 Mr C S Nelson  
79 East State St. Columbus Executive Secretary  
Oklahoma State Medical Association Muskogee May 9 11 Dr L S  
Willour Third and Seminole McAlester Secretary  
Rhode Island Medical Society Providence June 12 Dr Guy W Wells  
124 Waterman St. Providence Secretary  
Society of Surgeons of New Jersey Hackensack May 25 Dr Walter B  
Mount 21 Plymouth St. Montclair Secretary  
South Carolina Medical Association Myrtle Beach May 17 19 Dr E A  
Hines Seneca Secretary  
South Dakota State Medical Association Huron May 9 11 Dr Clarence  
E Sherwood 102½ Egan Ave S. Madison Secretary  
Texas State Medical Association of Galveston May 9 12 Dr Holman  
Taylor 1404 West El Paso St. Fort Worth Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1927 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (\*) are abstracted below.

#### Alabama Medical Association Journal, Montgomery

7 281 320 (Feb.) 1938

Contraception Part I Sociologic Aspects C L Lamar Birmingham —p 281  
Id. Part II Technique of Contraception L F Turlington Birmingham —p 287  
Tuberculosis as I Have Found It J G Daves Cullman —p 291  
Syphilis Some Observations and Conclusions Drawn from Administration of 120 600 Antisyphilitic Treatments to 4 560 Patients J P Robertson Birmingham —p 293  
Rupture of Ventral Hernia by Trauma Case Report J S Camp and R J Sherer Jasper —p 297

#### American Journal of Public Health, New York

28 117 240 (Feb.) 1938

Health Education for the Millions L I Dublin and H N Calver New York —p 117  
\*Scarlet Fever Immunization with Formalized Toxin Preliminary Report G W Anderson Boston —p 123  
Result of Active Immunization of Nurses Against Scarlet Fever E H Place Boston —p 137  
Sanitary Aspects of Air Conditioning C P Yaglou Boston —p 143  
Standard Agar Counts as Compared with Counts on Improved Agars at 32 C M W Yale Geneva N Y —p 148  
Syphilis Control in Industry R R Sayers Washington D C —p 155  
\*Comparative Methods of Diagnosis of Rabies in Animals C N Leach Montgomery Ala —p 162  
Tuberculosis Among Children and Young People in Citrus County N Y J H Korn Olean N Y —p 167  
Use of Dishwashing Machines Pasteurization of Eating Utensils W C Cox Washington D C —p 174  
Role of Nurse in Control of Syphilis and Gonorrhea Gladys L Crain Boston —p 181  
Suggested Program of Control of Amebiasis by Health Departments C F Craig New Orleans —p 187

**Scarlet Fever Immunization with Formalized Toxin**—Anderson points out that preliminary Dick tests were given to more than 14,000 children, of whom 63 per cent have been found positive. Of those who began the immunizing injections 8,212 received the complete course of three injections of formalized toxin. All children to whom formalized toxin was administered had been found to be susceptible as determined by a previous Dick test usually performed the day before the first dose of antigen was given. More than 80 per cent of those injected were rendered Dick negative. Subsequent studies in communities failed to bear out these early institutional results nor were the later results in institutions as favorable. Retests show that approximately 50 per cent of those injected have been rendered Dick negative. Anything more exact than this generalization would be unwarranted as the variations between communities and within the same community have been too great ranging from 21 to more than 60 per cent. Retest of a small group of children given a second course of injections after being found Dick positive subsequent to the first series of injections showed that more than 90 per cent of these children were rendered Dick negative. The figures are too small to be significant but raise a reasonable question as to the added protection which might

accrue from further injections of formalized toxin. It is impossible to advance any significant data as to the duration of immunity induced by formalized toxin. Institutional data, however, show no significant tendency to relapse to a Dick positive reaction. Reactions following the administration of the formalized toxin have been so mild that there has been as hearty an acceptance of this immunizing procedure as has been accorded to diphtheria immunization in the same communities.

**Methods of Diagnosis of Rabies in Animals**—Leach states that the mouse technic of Webster and Dawson for confirming the diagnosis of rabies in animals as practiced in his laboratory is as follows. Material, when not examined fresh, is preserved in full strength glycerin. A small portion of Ammon's horn is ground up in a sterile mortar and nine parts of hormone broth added to one part of ground brain material. This is thoroughly emulsified and then centrifuged at from 2,000 to 2,500 revolutions per minute for about five minutes. With a 0.25 cc tuberculin syringe, 0.03 cc of the supernatant fluid is injected into the brain through the skull of a 4 to 6 weeks old mouse. A 27 gage needle one fourth inch long is employed, and the injection is made slightly to one side of the midline of the skull and half way between the eye and the ear. The site of inoculation is moistened with alcohol before injecting. The mice are lightly etherized before the operation. It has been the practice at the laboratory to inoculate four mice with each brain specimen. In addition to shortening the period required for animal diagnosis, the method has the advantage of reducing the cost. Comparative results from brain material of 1,032 animals diagnosed by the usual methods in several laboratories and then injected into mice confirmed the positive results obtained by the usual methods but disclosed an error of 12 per cent for the brains reported negative for Negri bodies. The vaccination or treatment of animals with rabies vaccine apparently increases the difficulty of diagnosis by the discovery of Negri bodies.

#### Annals of Medical History, New York

10 107 196 (March) 1938

Role of the Jewish Physician in the Progress of His People If A Savitz Boston —p 107  
Medical References in the Dramas of John Lyly Alice Wilcox New York —p 117  
Tory Doctors of Georgia Under the Banishment Act of 1778 J Krafka Jr Augusta Ga —p 127  
Browne Langrish's Letter on Usefulness of Oleaginous Warm Baths Example of Eighteenth Century Medical Confusion Frances Tomlinson Gardner and C D Leake San Francisco —p 131  
Hunter Holmes McGuire M D LL D S McGuire Richmond Va —p 136  
Scottish Irish of the Valley of Virginia and Their Influence on Medical Progress in America H H Trout Roanoke Va —p 162  
Pioneer Medicine in Virginia B P Seward Roanoke Va —p 169

#### Annals of Surgery, Philadelphia

107 521 480 (March) 1938

Acute Ileus Analysis of 130 Cases Operated on at the Presbyterian Hospital New York City from 1932 to 1935 Inclusive T T van Beuren Jr and B C Smith New York —p 321  
Acute Intestinal Obstruction Statistical Survey of 342 Cases T Todyo Kogoshima Japan —p 340  
Perforated Gastric and Duodenal Ulcer J A McCreery New York —p 350  
\*Mesenteric Lymphadenitis and Acute Abdomen Report of Thirteen Cases W E Adams and Mary B Olney Chicago —p 359  
Pathogenesis of Necrosis of Cerebral Gray Matter Following Nitrous Oxide Anesthesia C B Courville Los Angeles —p 371  
Generalized Lymphogranuloma Inguinale T P Flierhard New York —p 380  
Pilonidal Sinus M McKirdie Iowa City —p 389  
Id. Observations on 140 Cases Treated by Caustic Excision H Rogers and R W Dwight Boston —p 400  
Treatment of Fractures of Shaft of Femur Analysis of 120 Cases R H Kennedy New York —p 419  
Water Balance in Neurosurgical Patients J C White W H Sweet and E S Hurwitz Boston —p 438  
Surgical Knots F W Taylor Indianapolis —p 458

**Mesenteric Lymphadenitis**—Adams and Olney cite twelve cases of nontuberculous and one of tuberculous mesenteric lymphadenitis. The patients were less than 14 years of age. The average age reported by most authors is less than 20 years. Nontuberculous lymphadenitis must be differentiated from acute appendicitis, pylonephritis, Meckel's diverticulitis and intussusception. The diagnosis is usually made at operation. The colicky nature of the pain and lack of localized symptoms in

cases which may be observed for a few hours may lead to a correct diagnosis without operation. This is especially true when there is a rapid subsidence of symptoms, a course which is often observed in this condition. Simple lymph node hyperplasia of the mesenteric nodes in the region of the ileocecal junction and, to a lesser extent, in the mesentery of the lower ileum, is the usual pathologic manifestation. Occasionally cultures of material from these nodes may yield pyogenic organisms. Exploratory celiotomy is the treatment of choice. The appendix is removed and the wound is closed without drainage. The prognosis for a permanent cure is good. Most patients remain symptom free following appendectomy.

**Water Balance in Neurosurgical Patients**—In addition to hemorrhage, which averages from 500 to 1,500 cc, the patient undergoing a prolonged operation for an intracranial tumor may lose up to 1,000 cc of water from his skin and lungs. White and his co-workers are concerned with what can be done to reduce this and how the disturbed fluid balance can be restored most effectively. The loss of water vaporized from the skin and lungs can be minimized by (1) the substitution for ether of local infiltration anesthesia and (2) avoidance of the use of too warm coverings in a hot operating room and in the ward. Replacement of fluid lost at operation is best carried out by the administration of a constant intravenous infusion of 5 per cent dextrose in physiologic solution of sodium chloride during all major craniotomies. The infusion should be continued in the ward until not more than 2,000 cc of fluid has run in. In this way the interstitial fluid reserve, as well as the electrolyte balance, can be maintained at slightly reduced but safe levels. Postoperatively, fluid must be replaced much more accurately in neurosurgical than in general surgical patients. A slightly deficient state of hydration is safer in patients after operations on the brain, in order to minimize cerebral edema. In the absence of vomiting or diarrhea, a 5 per cent solution of dextrose in distilled water is the preferred solution for prolonged intravenous administration. In addition to the measured output of urine, feces and vomitus, from 1 to 2.5 liters (quarts) of fluid is lost by vaporization from the skin and lungs in the course of each day. If this insensible loss is not taken into consideration, serious dehydration may develop.

### Archives of Neurology and Psychiatry, Chicago

39 433 654 (March) 1938

- Relation of Cerebral Cortex to Grasp Reflex and to Postural and Righting Reflexes. I. Bieber. New York, and J. F. Fulton, New Haven Conn.—p. 433.
- Effect of Experimental Temporary Vascular Occlusion on Spinal Cord II. Changes in Mineral Salt Content of Nerve Cells. L. L. Tureen. St. Louis.—p. 455.
- Histopathologic Changes in the Brain in Experimental Hyperinsulinism. A. Weil, E. Liebert and G. Heilbrunn. Chicago.—p. 467.
- Organization of Memory Traces in Korsakoff Syndrome. Lauretta Bender, F. J. Curran and P. Schilder. New York.—p. 482.
- \*Variability of Circulation Time in Normal and in Schizophrenic Subjects. H. Freeman. Worcester, Mass.—p. 488.
- Spongiosoma Polare. Clinicopathologic Study of Twelve Cases. D. H. Echols. Ann Arbor, Mich.—p. 494.
- Psychologic Structure of Catatonia. Psychopharmacologic Survey Utilizing Sodium Amytal. M. W. Thorner. Philadelphia.—p. 513.
- References to Sex Organs and Functions in Speech Production of Two Preschool Children. A. A. Low. Chicago.—p. 519.
- Gerstmann Syndrome. Finger Agnosia. Agraphia. Confusion of Right and Left and Acalculia. Comparison of This Syndrome with Disturbance of Body Scheme Resulting from Lesions of Right Side of the Brain. J. M. Nielsen. Los Angeles.—p. 536.
- Neuromyelitis Optica. Pathologic Study in a Case. Vera B. Dolgopod. New York.—p. 561.
- Hereditary Cerebellar Ataxia. Report of Case and Genetic Study. R. W. Waggoner, K. Löwenberg. Ann Arbor, Mich. and Kathryn G. Speicher. Orono, Maine.—p. 570.
- Two Day Cycles of Alternating Good and Bad Behavior in Psychotic Patients. C. P. Richter. Baltimore.—p. 587.

**Variability of Circulation Time**—Freeman determined the circulation time, with other physiologic processes, at intervals of four weeks on twenty-nine normal men and thirty-two men suffering from schizophrenia. During this interval the two groups of subjects lived in the same ward, ate about the same food and went through a similar amount of activity. The mean circulation time of the schizophrenic patients was longer than in normal subjects in both series of determinations. The variability in measurements of the circulation time was greater for the schizophrenic subjects than for the normal subjects both for the individual and for the group. For this function the

homogeneity of the individual is greater than that of the group. The variability of the function is such, however, that measurement of the circulation time for a given person can be considered to be a clinical characteristic for that subject only so far as it enables one to place him as having a low or a high value. The only variable which appeared to be correlated with the circulation time is the pulse rate. This correlation was greater for the group of schizophrenic patients than for the control group.

### Archives of Pathology, Chicago

25 303 444 (March) 1938

- Cytologic Studies on Rheumatic Fever. III. Comparison of Cells of Subcutaneous Nodules from Patients with Rheumatic Fever Rheumatoid Arthritis and Syphilis. C. McEwen. New York.—p. 303.
- \*Benzene Poisoning with Bizarre Extramedullary Hematopoiesis. E. A. Gall. Boston.—p. 315.
- Changes in Liver in Amebic Dysentery with Especial Reference to Origin of Amebic Abscess. R. B. Palmer. Chicago.—p. 377.
- Fat in Infant Brain in Relation to Myelin. Blood Vessels and Glia. C. R. Tutthill. Staten Island, N. Y.—p. 336.
- Development of Diurnal Cycle of Liver Function in Nursing Rat. Chemical and Histologic Study of Content of Glycogen and of Nucleic Acids in Liver Cell. H. P. G. Seckel and K. Kato. Chicago.—p. 341.

**Benzene Poisoning**—Gall gives the history and histologic observations of a case of benzene poisoning. The clinical picture was that of aplastic anemia, leukopenia, thrombocytopenia and macrocytosis. The disease terminated fatally with gastrointestinal hemorrhage. There was inadequate hemopoietic regeneration exhibited by the bone marrow. Low grade reticulocytosis and the immature myeloid cells and nucleated red cells in the circulating blood were explained on the basis of the changes in the marrow. Massive metaplastic erythropoiesis was present in the spleen and to a less degree in the liver. It is believed that the metaplastic changes observed were produced as the result of atypical regeneration in a liver and spleen damaged by benzene.

### Bulletin of Neurol Inst. of New York, New York

6 387 598 (Dec.) 1937

- \*Migraine in Children and Mechanism of Attack. H. A. Riley. New York.—p. 387.
- Sense of Smell. XVI. Comparison of Results of Encephalography and Ventriculography and of Quantitative Olfactory Tests for Localization of Supratentorial Tumors of the Brain. C. A. Elsberg. New York.—p. 403.
- Value of Quantitative Visual Tests for Localization of Supratentorial Tumors of the Brain. Preliminary Report. C. A. Elsberg and H. Spottnitz. New York.—p. 411.
- Are Vision and Olfactory Sense Governed by Same Laws? Comparison of Results of Quantitative Functional Tests of Vision and of Sense of Smell and Its Significance. C. A. Elsberg and H. Spottnitz. New York.—p. 421.
- \*Comparison of Symptoms and Signs of Intracerebral and Extracerebral Tumors Involving Temporal Lobes. R. T. Collins. New York.—p. 433.
- Ganglion Cell Tumors of Central Nervous System. A. Wolf and B. F. Morton. New York.—p. 453.
- Encephalographic Appearance of Intraventricular Epidermoid. C. G. Dyke and L. M. Davidoff. New York.—p. 489.
- Thresholds of Vibratory Sensibility as Determined by Pallesthesiometer. Study of Sixty Normal Subjects. R. W. Laudlaw and Mary Alice Hamilton. New York.—p. 494.
- Acute Demyelinating Encephalomyelitis Following Respiratory Distress. C. Davison and S. Brock. New York.—p. 504.
- Pathologic Study of Group of Cases Sometimes Referred to as Polyneuritis. W. M. Honeyman, New York.—p. 519.
- Posterior Inferior Cerebellar Artery Thrombosis. J. D. Spillar.—p. 529.
- Reactions of Patients to Encephalography. Analysis of 1,000 Consecutive Cases. S. S. Bohn. New York.—p. 540.
- Appearance of Meningioma in Tissue Culture. Note. A. Wolf and W. M. Honeyman. New York.—p. 569.
- Pyogenic Infections Within Vertebral Canal. M. M. Campbell. New York.—p. 574.

**Migraine in Children and Mechanism of Attack**—Riley declares that migraine appearing in childhood shows a tendency to disappear at the time of puberty, and if these patients are followed over a period of years there is a definite inclination for the attacks to recur at the time of the climacterium. The headache may appear interchangeably with other manifestations of the allergic status, such as hay fever, eczema, urticaria, bronchial asthma. It may be that the essential condition is an unbalanced equilibrium of the cerebral circulation in which an abnormal condition of dilatation or constriction in certain tiguous cerebral areas exist. It is impossible to state the exact pathway over which the migrainous discomfort is transmitted to the central nervous system. According to previous

opinions, any part of the intracranial arterial or venous tree may be involved by the vasotonic process and thus give rise to the symptoms characterizing the migrainous attack. The ultimate solution of the problem of migraine will depend on the careful collection of clinical and experimental material. The real problems toward the solution of which investigation must be addressed are the questions as to what it is which results in this explosion, how the result is accomplished and why one person responds in a particular manner to a situation which in another is entirely innocuous.

**Intracerebral and Extracerebral Tumors Involving Temporal Lobes**—Collins gathered 108 cases of tumors of the temporal lobe verified by operation or necropsy, from the records of the Neurological Institute (seventy-four intracerebral and thirty-four extracerebral neoplasms). The duration of symptoms in patients with intracerebral neoplasms ranged from four days to ten years, while the duration in the extracerebral tumors varied from one month to eighteen years. The following symptoms showed the greatest variability: (1) Headache occurred in 17 per cent more intracerebral tumors; (2) aphasia occurred in twice the number of intracerebral tumors; (3) generalized convulsions were twice as frequent in intracerebral tumors; (4) unconscious spells were four times as frequent in extracerebral tumors; (5) jacksonian motor seizures were absent in intracerebral tumors and (6) subjective field defects were absent in extracerebral tumors. Of the more important symptoms occurring during the course of the two types of neoplasms, decreasing vision was much higher in the extracerebral tumors with the elevation occurring chiefly as a succeeding symptom, auditory symptoms were much higher in the extracerebral group, drowsiness and stupor did not occur in any instance of the extracerebral group, uncinate attacks were much higher in the intracerebral group and sensory symptoms were much higher in the extracerebral group, whereas vertigo was much higher in the intracerebral tumors. In viewing the statistics from a general standpoint and not from a comparative one between the two types of neoplasms, as far as the symptomatology is concerned neoplasms in the temporal lobes do not produce symptoms of dysfunction in a high percentage of cases. All the temporal symptoms, such as aphasia, uncinate attacks, dreamy episodes and probably auditory symptoms and subjective field defects, occurred in about 50 per cent of the cases. The most important localizing signs are contralateral hemianopic or quadrantic field defects. Neighborhood symptoms and signs play an important part in localizing and lateralizing temporal neoplasms and the most important of these is an isolated contralateral central facial weakness. Contralateral motor and sensory disturbances and in no little measure in accurate localization.

### Connecticut State Medical Society Journal, Hartford

2 109 162 (March) 1938

- \*Leukemia. Some Evidence That Leukemia May Be Allied to New Growth. T S Evans. New Haven—p 112
- Method for Collection and Analysis of Anesthetic and Surgical Statistics. M Sklad. Providence. R I—p 119
- Clinical Studies and Treatment of Primary Carcinoma of Lung. R H Overholt. Boston—p 122
- Removal of Large Ovarian Cyst 135 Pounds. H Thoms. New Haven—p 127
- Laboratory Aids in Diagnosis of Syphilis. F L Mickle. Hartford—p 130
- Tuberculous Infection Among Negro Children in New Haven. C F Batelli. New Haven—p 131
- Socialized Medicine in Soviet Union. Emily M Pierson. Cromwell—p 133
- Treatment of Menopause. E Novak. Baltimore—p 133
- Hemolytic Streptococcus Meningitis with Recovery. Case Report. C C Taylor and C V Calvin. Bridgeport—p 137
- Some Remarks on Operative Treatment of Glaucoma. D H Webster. New York—p 139
- How Sick Are We? C Barker. New Haven—p 141

**Leukemia and Neoplasms**—Some pathologists believe that leukemia is a new growth of the bone marrow and the blood. In support of this view Evans gives the following clinical and laboratory observations: 1 The tumor is frequently in evidence for a long time before the development of the blood picture. This fact was evident in two of the four cases that are cited. 2 Mitotic figures (dividing blood cells) are seen in the lymph nodes, the bone marrow and rarely in the blood.

One of the cases illustrates this in the lymph nodes. In a second case there were mitotic figures in the spleen, liver, kidneys, lungs, adrenals, gastro-intestinal tract, lymph nodes, bone marrow and the circulating blood. 3 Tissues are definitely invaded by these cells. Rapid growth is demonstrated in nearly all tissues of the body. The lymph nodes in one case gave evidence of marked invasion through the capsule of leukemic cells. 4 Sensitivity of these cells to x-rays is well known and roentgen treatment and the new 'shatter' radium type of treatment is frequently effective in controlling the mass of cells in the liver, spleen and lymph nodes. 5 The tendency to skin and bone metastases is striking. The four cases of leukemia reported demonstrate one or more of the foregoing points.

### Georgia Medical Association Journal, Atlanta

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- Clinical and Experimental Studies of Burns. J D Martin Jr. Atlanta—p 39
- Tumors of the Brain. A Six Year Statistical Study. E F Fincher. Atlanta—p 47
- Bacterial Variations in Human Infections. R S Leadingham. Atlanta—p 50
- Anthrax (Dactyolysis Spontanea). C R Bennett. Eufaula, Ala—p 52
- Tropical Sprue. Report of Case. J R Rose. Unadilla—p 54

### Illinois Medical Journal, Chicago

73 89 176 (Feb) 1938

- Correlation of Secretarial Duties in the State Medical Society. H M Camp. Monmouth—p 105
- Retrospect and Prospect. R L Green. Peoria—p 108
- Medicine in an Evolving Society. J R Neal. Springfield—p 109
- Definition of Socialized Medicine. R H Hayes. Chicago—p 112
- Mastitis, Mastoplasia, Mastalgia and Gynecomastia in Normal Adolescent Males. F T Jung and A L Shafston. Chicago—p 115
- Clinical Aspects of Nephritis. R F Herndon. Springfield—p 123
- Acute Sinus Infection in Children and Adults. S M Morwitz. Chicago—p 132
- Coccygeal Glomus, a Possible Factor in Coccygodynia. T F Reuther, Effingham—p 134
- \*Pneumoperitoneum for Pulmonary Compression. J B Stokes. Pontiac—p 137
- Induced Hyperinsulinism. E F Dombrowski, H H Goldstein, A P Bay and J V Edlin. Chicago—p 147
- Effect on Urinary Bladder of Obstruction to Its Outlet. P F Olson. Dubuque, Iowa—p 151
- \*Autohemotherapy in Pulmonary Tuberculosis. E B Freilich and G C Coe. Chicago—p 154
- Functional Heart Murmurs in Newborn Infants. W J Siemens. Chicago—p 157
- Mongolism. M Sherman and Elinore A Tyden. Chicago—p 159
- The Organization of the Medical Service of the Army in War. R C Heflebower. Chicago—p 162
- Medical Commission and Organized Medicine. N L Sheehy. Rockford—p 167
- The American Legion's Contribution to the Boy's State and Big Brother Movement. L Applequist. Aurora—p 169
- Sex Crimes. J Kercher. Chicago—p 171

**Pneumoperitoneum for Pulmonary Compression**—Stokes used pneumoperitoneum for pulmonary compression in fifty-five cases, most of which were unsuitable for collapse therapy. The prognoses were uniformly unfavorable. The indications for this type of compression may be subdivided as follows: It may be used as an independent procedure, preparatory to other forms of compression or collapse therapy, to supplement phrenic paralysis and to supplement unilateral pneumothorax and it may be found of some benefit in the treatment of pulmonary tuberculosis complicated by tuberculous enterocolitis. Contraindications to pneumoperitoneum for pulmonary compression are poor general health, dyspnea, exudative or acute pleurisy, large cavities, rigid diaphragm and stiff walled cavities. The duration of pneumoperitoneum in forty-one cases ranged from one and a half to twenty-four months. In the fourteen cases in which pneumoperitoneum was instituted as an independent procedure the condition is apparently arrested in one, quiescent in one, improved in four and unimproved or worse in five. Three patients are dead. Of twelve cases in which it was thought, might ultimately become suitable for phrenic interruption or for surgical thoracoplasty, a thoracoplasty was performed in one and on discharge the condition was classified as arrested, the condition is unimproved or worse in six and five patients are dead. In the five cases in which either a phrenicotomy or a phrenicotomy with unsatisfactory results was performed



pneumoperitoneum was instituted with the hope that additional elevation of the diaphragm might prove beneficial, one patient has had a thoracoplasty and the condition is classed as apparently arrested, one is worse and three are dead. In the three cases in which pneumoperitoneum supplemented unilateral pneumothorax the results are also disappointing; the condition is unimproved in one and the other two patients are dead. The remaining seven patients received pneumoperitoneum both for pulmonary compression and for the relief of abdominal pain caused by tuberculous enterocolitis. The results in this group are likewise poor: one patient is improved, two are unimproved and four are dead. As a method of pulmonary compression, pneumoperitoneum has very limited application in the treatment of pulmonary tuberculosis. However, when other measures either fail or cannot be utilized, it may aid in the control of hemoptysis and in the reduction of toxemia.

**Autohemotherapy in Pulmonary Tuberculosis**—Freilich and Coe selected fifteen patients with pulmonary tuberculosis of the moderately or far advanced types for autohemotherapy. The eight women and seven men were studied for fourteen weeks and each received three treatments per week averaging fifty-two injections of from 10 to 15 cc of whole fresh blood taken from the arm under sterile conditions and injected directly into the buttocks, with the blood remaining in the syringe for an average time of fifty seconds. None of the patients received pneumothorax treatments and all were either semiambulant or confined to bed and were subjected to the standard therapeutic regimen of the hospital. After two months of treatment, six showed a gain in weight varying from 1 to 7 pounds (0.4 to 3 Kg) and averaging 4 pounds (2 Kg). Eleven patients were losing weight before the experiment began. Of these, five stopped losing, two showed a gain and four continued to lose. All the patients were subjectively improved in that they evidenced improved appetites, better mental attitudes, lessened cough and lessened sweats. Objectively the results were less pronounced. The sputums of three patients became negative after two to two and a half months of treatment. The remaining twelve evidenced no change. The physical and x-ray signs were not altered. In only two cases did the temperature come down to a normal level. Two patients died within three months after the experiment was concluded. Five of the six patients continued to gain in weight and continued to evidence subjective improvement, but the remaining eight either continued to lose in weight or maintained a stationary level. Of these eight, four pursued a downward course during the next six months and three died. No toxic effects were evidenced in any of the cases during the experiment, although five of the men had an associated arteriosclerosis and one a mild diabetes. Considering a similar group of fifteen patients treated according to the same hospital regimen, except that they received pneumothorax without any autohemotherapy, the results were not comparable in that this group made much better improvement objectively and subjectively. There was only a slight difference in favor of the group treated with autohemotherapy as compared with a similar group treated by routine hygienic-rest management without pneumothorax. This form of therapy is worthy of further trial and may be a successful adjunct to the routine treatment of pulmonary tuberculosis with and without artificial pneumothorax.

### Indiana State Medical Assn Journal, Indianapolis

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- Pneumonia and Respiratory Disease from the Public Health Standpoint H G Morgan Indianapolis—p 111  
Pneumonia from Standpoint of the Laboratory Man W Dodds Crawfordville—p 113  
Treatment of Empyema H G Weiss Evansville—p 115  
Diagnostic Methods of Tuberculosis for the Practitioner D M Short Evansville—p 119  
Socialized versus Humanized Medicine G B Wilder Anderson—p 121  
Acute Perforated Peptic Ulcers and Their Relation to Trauma C A Weller Indianapolis—p 123  
Ether Anesthesia R Geider Indianapolis—p 128  
Prediction of Abnormally High Erythrocyte Counts in Persons with Achlorhydria by Continued Use of Liver Extract H M Fowler Fort Wayne—p 130

### Journal of Bacteriology, Baltimore

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- Enterococci and Related Streptococci J M Sherman Ithaca N Y—p 81  
Further Studies on IV Variants of *Salmonella Typhi Muenchen* (Atrycke) with Especial Reference to Cultures from Pigeons P R Edwards Lexington Ky—p 123  
Influence of Vitamin C on Growth of Anaerobes in Presence of Air with Especial Reference to Relative Significance of EH and O<sub>2</sub> in Growth of Anaerobes I J Kligler and K Guggenheim Jerusalem, Palestine—p 141  
Fermentation of Acetyl methylcarbinol by *Escherichia Aerobacter* Group and Its Significance in Voges Proskauer Reaction R P Tuttle Rochester N Y—p 157  
Preservation of Bacterial Cultures I H E Morton and E J Pulaski Philadelphia—p 163  
Hydrogen Sulfide Studies I Detection of Hydrogen Sulfide in Cultures C A Hunter and H G Crecelius Vermilion S D—p 185

### Journal of Immunology, Baltimore

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- Studies in Experimental Hypersensitiveness in Rhesus Monkey II Allergic Reaction in Passively Locally Sensitized Abdominal Organs (Preliminary Report) M Walzer I Gray H W Straus and S Livingston Brooklyn—p 91  
Agglutinative Titration of Antimenogococcus Serums Types I and III with Encapsulated Bacteria P A Little Pearl River N Y—p 91  
Diluent for Stabilizing Tuberculin Old Tuberculin Diluted for Mantoux Test R Gottschall and W E Bunney Lansing Mich—p 103  
Antigenic Structure of Hemolytic Streptococci of Lancefield Group A I Preparation of Labile Type Specific Antigen Its Identification as Griffith Type Specific Agglutinin and as a Substance from Which a Group Specific and Type Specific Hapten Are Derivable S Mudd E J Czarnetzky D Lackman and H Pettit Philadelphia—p 117  
Id II Lability of Labile Antigen and Its Explanation Isolation of Labile Antigen in Pure State Its Relation to Oxygen Labile Antigens Streptolysin E J Czarnetzky S Mudd H Pettit and D Lackman Philadelphia—p 155

**Diluent for Stabilizing Tuberculin for Mantoux Test**—Gottschall and Bunney found that a diluent buffered to pH 7.2 with boric acid, containing 0.04 per cent acacia and 0.5 per cent phenol, stabilized the tuberculins tested when diluted 1:10,000 and dispensed in rubber stoppered hard glass vials of 1 or 10 cc capacity. This stability was proof against destruction by shaking for seven days, exposure to indirect sunlight at room temperature for four months or prolonged transportation to warm climates and return.

### Journal of Nutrition, Philadelphia

15 103 210 (Feb) 1938

- Method of Increasing Precision in Vitamin A Assay Pearl P Swanson Gladys T Stevenson and P Mabel Nelson Ames Iowa—p 103  
Influence of Diet on Nitrogen Balances of Preschool Children Jean F Hawks Merle M Bray and Marie Dye East Lansing Mich—p 113  
Heat Production and Gaseous Metabolism of Young Male Chickens H G Barott J C Fritz Emma M Pringle and H W Titus Beltsville Md—p 145  
Trace Element Content of the Newborn Rat (Spectrographically) L L Rusoff and L W Gaddum Gainesville Fla—p 169  
Changes in Total Calcium Content of Bones During Development of Rickets B Hamilton and W J Higbman Jr Chicago—p 177  
Easily Constructed Rat Metabolism Apparatus Which Automatically Records Oxygen Consumption and Animal Activity E L Schwabe and F R Griffith Jr Buffalo—p 187  
Effect of Prolonged Exposure to Low Temperature on Basal Metabolism of the Rat E L Schwabe F E Emery and F R Griffith Jr Buffalo—p 199

**Influence of Diet on Nitrogen Balance**—Hawks and her associates observed five children who received constant diets containing 3 Gm of protein per kilogram of weight. They all excreted the same proportion of the nitrogen intake but the urine figures fluctuated according to variations in the intake, while the feces values remained constant for each child and were proportional to the dry weight of the feces. The ratio of fecal nitrogen to dry matter consumed remained fairly constant for each child but varied between children according to the character of the stools. For individual children the coefficient of digestibility varied between 86 and 92.7 per cent while the retention values remained more constant but both values fluctuated in proportion to the period by period variation in the diet. Immediately following the change to a protein diet of 4 Gm the excretion values were irregular. After nine days they had apparently reached an equilibrium. The average of the retention and intake values per kilogram for all children for each separate period showed that the children retained nitrogen in relation to the period but with variations except immediately after the change in diet.

## Journal of Pediatrics, St Louis

12 139 286 (Feb.) 1938

- \*Inclusion Blennorrhoea W A Howard Washington D C—p 139
- Erythema Exsudativum Multiforme with Ophthalmia and Stomatitis Report of Two Cases in Children with Certain Observations on Histopathology and Animal Inoculation Katherine J Edgar and J T Syverton Rochester N Y—p 151
- Study of Prophylactic Effects of Pertussis Vaccine J G Kramer Akron Ohio—p 160
- Hodgkins Disease with Terminal Eosinophilia Occurring in a Negro Child with Sickleemia K Kato and W W Cardozo Chicago—p 165
- Severe Functional Anemia in a Child Resembling Pernicious Anemia of Adults Case Study J M Adams and I McQuarrie Minneapolis—p 176
- \*Free Diet in Children with Diabetes A Lichtenstein Stockholm Sweden—p 183
- Influence of Daily Serving of Spinach or Its Equivalent in Oxalic Acid on Mineral Utilization of Children P Bonner F C Hummel M F Bates J Horton H A Hunscher and I G Macy Detroit—p 188
- Toxic Encephalopathy in a Child Following Internal Administration of Potassium Chlorate and Sulfarsphenamine J Greengard Chicago—p 197
- Colecystitis in Childhood H Lowenburg Jr and A G Mitchell Cincinnati—p 203
- Developmental History of Stuttering Children Mildred Freburg Berry Rockford, Ill—p 209
- Emotional and Social Development of Girls with Heart Disease H B Silver, Newark N J—p 218
- Nature of the American Diet J D Boyd Iowa City—p 243

**Inclusion Blennorrhoea**—Howard states that recent research indicates that inclusion blennorrhoea is a specific, non-bacterial form of conjunctivitis due to a filtrable virus, apparently transmitted to the infant from the mother during passage through the birth canal. It appears from the fifth to the tenth day of life, and its course, while self limited, may extend over many months. Diagnosis can be established only by means of examination of Giemsa-stained preparations of the conjunctival secretions. Cultures are either sterile or show only the usual nonpathogenic conjunctival organisms. In the absence of a specific therapeutic agent, treatment should be symptomatic, with the prevention of secondary infection. Bacteriologic studies should be made in every case of ophthalmia neonatorum, however mild, and each examination should include a study of the exudate and conjunctival scrapings after special staining by the Giemsa method.

**Diet in Children with Diabetes**—Lichtenstein has been using the free diet for diabetic children for more than four years. By free diet he means a diet without any restrictions and without weighing the food or any of its ingredients. The only restriction in diet is to avoid luxury, which should be avoided also by healthy children. The insulin is given in doses sufficient to keep the child in good general condition, in good increase of weight and free from ketone bodies in the urine. The change from the restricted to the free diet generally takes place without any disturbances. As a result of the release from restrictions the children show signs of voracious hunger for carbohydrates. After some time however, they reduce the consumption of carbohydrates of their own accord. An inconvenience attached to the free diet seems to be that three injections of the usual insulin must be given in twenty-four hours, often in cases in which two injections were sufficient during the restricted diet. With protamine insulin it has been possible to reduce the insulin doses from three to two and in many cases to only one injection a day in spite of keeping the child on a free diet. Children who had earlier always shown decided positive reactions to the Gerhardt and Legal tests and who in many instances had to be admitted to the hospital again and again with threatening coma have been free from these difficulties after being placed on a free diet.

## Physiological Reviews, Baltimore

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- Relation of Anterior Pituitary to Carbohydrate Metabolism Jane A Russell Berkeley Calif—p 1
- Physiology of Excretion Among Arthropoda N S R Maloeuf New Haven Conn—p 28
- Recent Advances in Knowledge Concerning Hearing and Speech Phyllis M Tooke, Kerridge London England—p 59
- Arterial and Venous Pressure Factors in Circulatory Failure. T R Harten Nashville Tenn—p 86
- Nutritive Significance of Amino Acids W C Roe Urbana Ill—p 109

## Radiology, Syracuse, N Y

30 147 276 (Feb.) 1938

- Clinical and Roentgenologic Manifestations and Surgical Treatment of Diaphragmatic Hernia Review of 131 Cases S W Harrington and B R Kirklin Rochester Minn—p 147
- Pelvic Roentgenography in Pregnancy Further Experiments with 90 Degrees Triangulation Method P C Hodges and Jane E Hamilton Chicago—p 157
- Use of Interstitial Radiation in Treatment of Primary and Recurrent Carcinoma of Uterine Cervix A N Arneson St Louis—p 167
- Analysis by X Rays of Ultimate Structures of Living Materials G L Clark Urbana Ill—p 180
- Evolution of Radiotherapy During Past Ten Years in Treatment of Certain Generalized Affections R Gilbert Geneva Switzerland translation by A U Desjardins Rochester Minn—p 191
- Colon Spasm H W Soper St Louis—p 196
- Clinical Results in Sixty Nine Patients Treated by Substerilizing Dose of Radium or X Ray J A Corscaden H Kasabach and M Lenz New York—p 203
- Hereditary Effects of X Ray Radiation M Demerec Cold Spring Harbor N Y—p 212
- Surface and Depth Intensities for Short Distance Low Voltage Therapy M C Reinhard and H I Coodale Buffalo—p 221
- Advancing Osteosclerosis of Unknown Etiology Roentgenologic Manifestation of Probable Infectious Process of Bone E Freedman Cleveland—p 225
- Neuroblastoma A Childhood Type of Malignant Tumor of Sympathetic Nervous System I S Startz Elmhurst N Y and J Abrams Brooklyn—p 232

## Southwestern Medicine, Phoenix, Ariz

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- \*Bronchopulmonary Moniliasis O J Farness Tucson Ariz—p 41
- Headaches Caused by Evestram M C Wilensky New Orleans—p 43
- Postvaccinal Encephalitis E W Lander Roswell N M—p 46
- Use of Paraldehyde in Home Deliveries O P Heninger Safford Ariz—p 48
- Outbreak of Botulism in Tucumcari New Mexico C H Douthitt Santa Fe N M—p 51
- Laboratory Aids in Treating Pneumonia C A Boynton Phoenix Ariz—p 54

**Bronchopulmonary Moniliasis**—Farness believes that bronchopulmonary moniliasis, masking under the guise of tuberculosis occurs in all climates with much greater frequency than is generally recognized. The disease is amenable to treatment, making early diagnosis important. In the mild type the general condition of the patient is good and there is no fever. Frequent recurrence of slight, persistent cough with scanty, mucopurulent sputum without blood is the rule. Physical examination of the chest is negative or reveals only a few rales. In the moderate form the symptoms may simulate an early phthisis with continued low grade fever. The sputum is mucopurulent and tenacious and may contain blood. Symptoms may be continuous but are usually intermittent. Nutrition is affected to only a slight degree. A diagnosis of chronic bronchitis, bronchiectasis or bronchial asthma is usually made. In the severe form the disease runs a prolonged course with periods of exacerbation of symptoms. A history of recurrent attacks of pneumonia is often elicited. The pulmonary involvement may be unilateral or bilateral. Roentgenologically the picture is that of pulmonary tuberculosis. There is the same hectic fever and night sweats with gradually developing emaciation and loss of strength. There are attacks of dyspnea and paroxysmal coughing, worse at night. The sputum is mucopurulent tenacious and often hemorrhagic and may have a yeasty or sweetish odor. Many cases follow pneumonia or influenza and some give a history of bronchial asthma several years prior to the onset of the disease. This suggests a lowered tissue resistance. The physical signs are those of patchy consolidation and fibrosis of purulent bronchitis and bronchiectasis and often of abscesses and cavities. Roentgenograms are not distinctive and simply reveal a pathologic process similar in appearance to other types of pulmonary infection. Sputum from a case of pulmonary infection which fails to reveal acid fast organisms and does contain yeastlike organisms, should be subjected to further mycologic studies. The responsible organism is of the genus *Monilia* belonging to the class of Hyphomycetes or fungi imperfecti. There are two methods for the differentiation of species: animal inoculation and sugar fermentation reactions. The prognosis is on the whole good. The mild type may result in spontaneous cure and is always readily amenable to specific therapy. The moderate type usually responds but often requires a prolonged course of treatment. The severe type may respond to treatment in its very early stages but is apparently incurable.

although it may be months before death supervenes. The iodides are regarded as specific. This is based on the specific germicidal effect of potassium iodide on *Monilia*. It is administered in large doses by the oral or intravenous route. A case is reported.

### Surgery, Gynecology and Obstetrics, Chicago

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Lesions of Intervertebral Disk and Ligamenta Flava Clinical and Anatomic Studies H C Naffziger V Imman and J B de C M Saunders San Francisco—p 288  
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Diverticuli of the Intestine C F Dixon, J I Deuterman and H M Weber Rochester Minn—p 314  
Tuberculosis of the Kidney F Hinman San Francisco—p 329  
Some Physiologic and Pathologic Observations on Urinary Tract During Pregnancy J M Hundley Jr I A Siegel T W Hachtel and J C Dumlum Baltimore—p 360  
Modern Surgery of Retinal Detachment H S Gradle and S J Meyer, Chicago—p 380  
Hoarseness F E LeJeune New Orleans—p 405  
Water Balance in Relation to Toxemias of Pregnancy M E Davis Chicago—p 426  
Abdominal and Pelvic Pain—from a Gynecologic Point of View A H Curtis Chicago—p 432  
Recognition and Prevention of Lead Poisoning R A Kehoe Cincinnati—p 444  
Complete Avulsion of Scap and Loss of Right Limb Reconstruction by Pedunculated Tube Grafts and Costal Cartilage J A Cahill Jr and P A Canfield Washington D C—p 459  
Functional Disabilities After Simple Fracture with Especial Reference to Impairment of Bone Atrophy in Prolongation of Disability F B Gurd Montreal—p 489  
Fractures of Both Bones of Forearm Excluding Those at Elbow Joint and Wrist Joint W P Carrell Dallas Texas—p 506  
Correlation of Body Segmental Temperature and Its Relation to Location of Carcinomatous Metastasis Clinical Observations and Response to Methods of Refrigeration T Fay and G C Henny Philadelphia—p 512  
Treatment of Cancer of Rectum J P Lockhart Mummery, London England—p 527  
Surgical Treatment of Carcinoma of Thoracic Esophagus Report of Three Successful Cases J H Garlock New York—p 534  
Cystectomy and Transplantation of Ureters into Bowel for Carcinoma of Bladder C C Higgins Cleveland—p 549

**Tuberculosis of the Kidney**—Hinman contends that the conception that renal tuberculosis is bilateral at onset, that in the majority one side heals spontaneously leaving a unilateral lesion and that occasionally both sides may so heal should have no effect on the management of clinical renal tuberculosis. This conception necessitates more than ever the differentiation of preclinical and other forms of tuberculosis of the kidney—such as military tuberculosis—from the clinical forms of the disease. The finding of pus and tubercle bacilli in the urine points definitely to the clinical form of renal tuberculosis, but the diagnosis is not complete until all possible associated lesions have been searched for and recognized. The routine use of retrograde pyelography is condemned, as it may aid in the spread of the infection. Worldwide experience demonstrates the superiority of nephrectomy in the treatment of unilateral tuberculosis of the kidney. When tuberculosis is localized in the kidney and the patient has been properly prepared nephrectomy is almost 100 per cent curative. When associated lesions exist in the bladder seminal tract or elsewhere, nephrectomy is still from 60 to 70 per cent curative. Nephrectomy is rarely an emergency procedure and should be performed only after a complete study and careful preparation. Clipping of the pedicle should be the first objective. As much of the ureter as is accessible should be removed but a complete ureterectomy is unnecessary.

**Water Balance in Relation to Toxemias of Pregnancy**—Davis states that normally the body maintains a balance of water by regulating the output to the intake. The intake of water may exceed the output in which case a positive water balance will be established. This may be due to an excessive consumption of fluid or to an interference with the output. Pregnancy normally is characterized by a positive water balance. This retention of water is most marked in the last half of the gestation. The generalized tendency to edema in pregnant women may be the cause or the effect of this positive water balance. The fetus may be regarded as a fast growing tissue of the mother's body consuming considerable water. The placenta likewise enlarges rapidly leading to marked retention

of fluid. The total water requirement of the mother may become disproportionate to the surface area. This permanent increased fluid supply, cellular and intracellular in character, is evidenced by the ease with which edema develops late in pregnancy. The blood volume gradually increases so that at term the total volume averages 23 per cent greater than in the nonpregnant individual. Thus blood volume increase is a blood dilution, for the increase in the hemoglobin and the cellular constituents does not keep pace with the increase in the blood plasma. This altered fluid metabolism of normal pregnancy necessary for both the growing fetus and the preparation for labor can be easily upset and result in pathologic complications of serious import. An increased positive water balance is thus a characteristic finding in most of the late toxemias of pregnancy. A decreased blood volume with a concentration of the cellular constituents is associated with severe preeclampsia and eclampsia. Negative water balance results when the available supply of water to the body diminishes below normal levels, either as a result of decreased intake or because of an interference with gastrointestinal absorption. Thus, starvation, vomiting and diarrhea result in an interference with the fluid intake. There may be an excessive loss of water so that the normal balance cannot be maintained. In severe cases of dehydration there is a decrease in the blood volume, with a resultant increase in hemoglobin, cell volume, serum protein and nonprotein nitrogen. Hyperemesis gravidarum is chiefly characterized by a negative water balance in which condition the available supply of water to the body tissues is decreased because of the continued vomiting. The late toxemias of pregnancy, preeclampsia and eclampsia are characterized by a marked disturbance of water balance. The normal positive water balance of pregnancy probably contributes to the ease with which a pathologic water balance develops. Clinically, the earliest manifestation of preeclampsia may be the sudden gain in weight. Whenever a patient gains from 3 to 4 kilograms (6½ to 9 pounds) in a week or ten days, one must assume that this increased weight represents to a large extent an increased water storage. Edema may or may not be present, depending on whether this fluid is largely intercellular or extracellular. With the retention of water there occurs a retention and storage of chlorides, for tissues cannot store water unless sufficient chlorides are present. The blood chlorides, however, fail to increase in amount even during the convulsive state, for a balance is always maintained between the blood chlorides and the tissue chlorides. This increased chloride content of the body tissues represents, therefore, an increased intake and retention of chlorides rather than a decrease in the chloride output. If one now carefully estimates the intake and the output of fluids, the increasing positive water balance is readily detected.

### Texas State Journal of Medicine, Fort Worth

73 671 726 (Feb.) 1938

- Mixed Tumors R D Aunoy New Orleans—p 673  
Massive Atelectasis Complicating Pulmonary Tuberculosis H R Hoskins Sanatorium—p 678  
Clinical Aspects of Closed Intrapleural Pneumolysis L J Moorman Oklahoma City—p 681  
Toxic Manifestations of Sulfanilamide S E Stout Fort Worth—p 685  
Hydrogen Ion in Complement Fixation H B Willford Beaumont—p 687  
And Sudden Death Sudden Death in Surgical Cases I Cohn New Orleans—p 689  
Early Diagnosis of Perinephric Abscess J M Pace Dallas—p 693  
Solitary Cyst of the Kidney S Cooper Abilene—p 697  
Cervical Carcinoma R I Lewis Paris—p 699  
Infections of Cervix Uteri R W Crosthwait, Waco—p 702

### West Virginia Medical Journal, Charleston

31 97 144 (March) 1938

- Syphilis in Infancy J F Moore Baltimore—p 97  
Studies in Transmission of Syphilis D C Smith Charleston—p 101  
and W M Shepperd Wheeling—p 101  
Facilities of State Hygienic Laboratory for Detection of Syphilis E Cox Charleston—p 105  
Syphilis of Bone and Joint C J Smith Charleston—p 111  
Early Diagnosis of Syphilis in the Fetus R A I Pitts P H Wood and J F Barker Huntington—p 114  
Diagnosis and Treatment of Erythema A J Osterman Wheeling—p 117  
Diagnosis and Treatment of Cardiovascular Syphilis P J Calkins Elkins—p 126  
William Blake's Syphilis V F Vesey Huntington—p 127

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below Single case reports and trials of new drugs are usually omitted

### British Journal of Physical Medicine, London

1 43 80 (Feb) 1938

- Physiotherapy and Peripheral Circulation F Nagelschmidt—p 44  
Low Intensity Short Wave Therapy Some Clinical Results P P Dalton—p 48  
Electrical Investigation of Neuromuscular Function A P Cavadias—p 51  
Infra Red Therapy in Acute Suppurative Conditions E Taylor Pengelley—p 63

### British Medical Journal, London

1 265 320 (Feb 5) 1938

- New Outlook on Physiology and Pathology of Mental and Emotional States F A Pickworth—p 265  
\*Healing of Empyema Cavities with Especial Reference to Aspiration and Air Replacement as an Aid to Operation P R Allison—p 272  
Tuberculosis in Infants Dorothy Price—p 275  
Unusual Tuberculous Appendix D J Harries and E Williams—p 277  
Pelvimetry and the True Conjugate J Howkins—p 278  
Why Postanesthetic Pulmonary Complications? G R Oshorn—p 279  
Chloroma Case History and Postmortem Findings R E Horsfall—p 280

**Healing of Empyema Cavities**—Allison maintains that the classification of acute empyemas into the synpneumonic and the postpneumonic, and the recognition of the significance of these types have done much to reduce the immediate mortality from operation. Now the incidence of chronic empyema with its associated morbidity and mortality should be reduced. To this end two groups, simple and complicated, are suggested. The simple empyema is one in which no permanent structural alteration has taken place within the lung tissue and in which, with adequate drainage, the lung expands completely to fill the chest with no deformity of the parietes. Such an empyema should always heal without difficulty. The complicated empyema is one in which structural damage has occurred in the lung to such an extent that complete reexpansion is impossible, and in those circumstances not only will there be delay in healing but this will occur partly at the expense of the parietes. The most significant point in the history is the relation of the febrile attack to the pleuritic pain. If the pleuritic pain occurs at the beginning of the illness the empyema is likely to be a simple one. If, however, a febrile attack is the initial disturbance, followed by pleuritic pain, the empyema is likely to be complicated. Streptococcal pneumonia and pneumonitis, secondary to lung abscess and bronchial block, start in the depths of the lung tissue and spread outward to the pleura by the interstitial lymphatics, so that pleurisy occurs at a later stage of the illness. In no case does preliminary aspiration do harm. It relieves the patient and at the same time gives valuable information to the operator. When a cavity is filled with large masses of fibrinous clot, aspiration is not always possible, but its routine attempt has been found to diminish the number of cases requiring secondary drainage operations. When empyemas have been drained without previous aspiration, it has sometimes been found that these adjustments result in the lung coming up flat against the end of the tube and so interfering with the drainage of a relatively deep space. Therefore before the point of drainage is decided it is an advantage to allow these immediate adjustments to be made by the aspiration of as much of the pus as possible followed by x-ray examination in two or more planes. It is desirable to know before operation the shape, position and size of a cavity after the pressure within it is relieved, the composition of the parietal wall and such information about the way in which the empyema will heal as may be deduced from consideration of its nature and the elasticity of its walls. To this end aspiration is done through a wide-bore cannula and when possible as much of the pus is removed as possible and then, by leaving the cannula in position while detaching it from the suction apparatus, a little air is allowed to be drawn into the cavity by the patient's own respiratory effort. The presence of air in an empyemic cavity is not harmful but by creating a fluid level it makes accurate x-ray examination of the cavity possible. Following aspiration, roentgenograms of the chest are taken from which the best point for drainage is chosen. The

method of drainage, open or closed, is not considered to be of any importance so long as the tube is large enough and in the right place. A portion of a rib is always resected.

### Glasgow Medical Journal

11 53 112 (Feb) 1938

- \*Observations on Diagnostic and Prognostic Significance of Electrocardiograms Showing Anomalous Forms of QRS in Lead III Based on an Analysis and Follow Up Series of Cases A A F Peel—p 53

**Electrocardiograms Showing Anomalous Forms of QRS in Lead 3**—Peel reviewed 1873 electrocardiograms obtained from 1,307 patients during 1928 to 1933. Those showing anomalous forms of QRS, have been selected and classified into groups, and the patients in each group have been followed up and when possible reexamined during 1937. Many different types of QRS, have been encountered. The series of patients includes both hospital and private, ambulant and bedridden. All the more important varieties of cardiovascular disease were represented and in addition there were numerous "functional" cases, a number of patients suffering from disease other than cardiovascular, and a few who were thought to be malingering. The most important prognostic feature of these electrocardiograms is the breadth of the QRS complex. When the duration of the QRS complex at the first examination was below 0.08 second the mortality in the interval was 23 per cent. With a QRS duration of 0.08 second the mortality was 43 per cent. When the QRS duration exceeded 0.08 second at the first examination the mortality was 71 per cent.

### Indian Journal of Medical Research, Calcutta

25 569 834 (Jan) 1938 Partial Index

- Epidemic of Cholera in a Rural Area in South India Caused by Ogawa Type of Vibrio Cholerae K V Venkatraman and C G Pandit—p 585  
Laboratory Tests on Fungistatic and Fungicidal Effect of Various Substances P A Maplesone and N C Dey—p 603  
Vitamin A Contents of Ghee K S Grewal and B D Kochhar—p 623  
\*Treatment of Stomatitis Caused by Diet Deficiency W R Aykroyd and B G Krishnan—p 643  
Skimmed Milk and Growth of School Children with Statistical Note B G Krishnan and K Mitra—p 647  
Studies on Vitamin A Deficiency Part III Lesions of Peripheral Nervous System M V Radhakrishna Rao—p 661  
Available Iron in Some Common Indian Foodstuffs Determined by a Dipyrindine Method S Ranganathan—p 677  
Effect on Rats of Supplementing a South Indian Diet with Calcium and Phosphorus R K Pal and Narindra Singh—p 693  
Hematologic Investigations in South India Part II Effect of Administration of Iron on Hemoglobin Level in Indian Girls and Young Women G Sankaran and K Rajagopal—p 753  
Absence of Effective Immunity After Cure of Protozoal Infections H E Shortt S R Pandit K P Menon and C S Swaminath—p 763  
\*Successful Transmission of Cutaneous Leishmaniasis by Inoculation to Man from Natural Lesion Occurring on Dog in India J A Sinton—p 787  
Studies in Effects of Heat Part I Biochemical and Physical Changes in Ten Cases Suffering from Effects of Heat D N Chakravarti and N Taga—p 791

**Treatment of Stomatitis Caused by Diet Deficiency**—Aykroyd and Krishnan present the results of giving eggs, soya bean and yeast autoclaved in an alkaline medium to children suffering from stomatitis. The patients given treatment were all boys of ages ranging from 8 to 16 years. Nearly all were living in boarding schools, and during the period the supplement was given they continued to consume the defective diets which had led to the development of stomatitis. Of seven boys treated with eggs, one egg daily for thirty-two days produced definite improvement in three but not complete disappearance of all signs. Two eggs were then given daily for twenty days, and complete cure resulted. The four boys who were given three eggs daily were cured in three weeks. Other pupils in the institutions on the same diet without the addition of eggs showed no improvement during the same period. Five patients received 1½ ounces (45 Gm) daily of soya bean for thirty-two days and 3 ounces (90 Gm) daily for thirty-two days. The beans were given whole being cooked until soft. No improvement was observed in any of the boys and one of them became worse. In the same period three boys in the same school were cured by eggs. Alkaline yeast autoclaved for five hours at 130 C at pH 9.2 and subsequently neutralized was given to eight boys the dose being one half ounce (15 Gm) daily.





# Annales de Medecine, Paris

43 165 252 (March) 1938

- Researches on Pathogenesis of Rickets G Mouriquand A Leulier and A Coeur—p 165  
 \*Acute Intoxication by Ingestion of Aniline J Cathala R Hazard H Maschas and R Jequier—p 187  
 Acute Saturnine Nephritis M P Weil and V Oumansky—p 195  
 Role of Liver in Modifications of Proteins in Suppurations I Blustein—p 211  
 Polyneuritis in Malarial Patients H Rogers and J Boudouresques—p 235

**Acute Intoxication from Ingestion of Aniline**—Cathala and his associates report the case of a child, aged 18 months, in whom an acute intoxication resulted from the ingestion of a tincture with an aniline base. This case induced the authors to make experiments on rabbits. They studied the action of aniline on the alkali reserve, the blood chloride and sugar and the respiration. The authors reach the following conclusions: 1. Acute intoxication by aniline, in addition to the methemoglobinizing effects, produces profound changes in the acid-base equilibrium and the glycemic regulation. 2. The acute intoxication by aniline influences the nervous system and determines grave disturbances, such as asthenia, polypnea, somnolence and collapse. 3. It is interesting to note that in the young child a definite intoxication provokes symptoms which do not fundamentally differ from those which characterize the choleriform toxic syndrome.

## Bull et Mem de la Soc Med des Hôpitaux de Paris

54 377 412 (March 14) 1938 Partial Index

- \*First Results of Study of Chemistry of Medullary Juice Obtained by Sternal Puncture Glycomyelia R Benda F Franchel J Ducatel and J Nicolas—p 378  
 Studies on Medullary Iron R Benda G Poirot and F Franchel—p 386  
 Chronic Hypertensive Nephritis in Child Simulating a Cerebral Tumor Study of Renal Insufficiency R Debre J Marie R Dumas and Malinsky—p 390  
 Cryptogenic Aplastic Myelosis with Slow Progress P Emile Weil P Isch Wall and S Perles—p 398  
 Study of Complex Pulmonary Lesions by Tomography P Ameuille G Ronneaux and J M Lemoine—p 401

### Chemistry of Material Obtained by Sternal Puncture

—Benda and his associates report studies on the sugar content of the blood and of the marrow obtained by sternal puncture. In studies on twenty-five subjects they found that the glycomyelia is equal to or slightly less than the glycemia. In hyperglycemic states without glycosuria, the glycomyelia is extremely variable in comparison with the glycemia. This observation was made on nine patients. In diabetes, glycomyelia has a decided tendency to be higher than glycemia, this can be demonstrated only at times, namely if, taking into account the absence of chemical homogeneity in the medullary juice, the sugar content is determined in several successive specimens. The investigations on diabetes were made in five cases. The authors suggest that the study of glycomyelia be applied as a routine measure for the study of sugar metabolism (tests for insulin, epinephrine, phlorhizin and alimentary glycosuria).

## Presse Medicale, Paris

46 433 448 (March 19) 1938

- Justacardiac Region of Stomach in Gastroscopy F Moutier and C Debray—p 433  
 Stenosis of Aortic Valve and Auriculoventricular Dissociation R Lutembacher—p 436  
 Study of Mechanism of Spontaneous Obliteration of Tuberculous Cavities R Poinso and Y Poursines—p 439  
 Metastatic Cancers Lag of Roentgenologic Signs and Their Rapidity of Appearance J A Chavany and F Thiebaut—p 442  
 \*New Roentgenologic Technique to Visualize the Small Intestine B Ghelew and O Mengis—p 444  
 Diverticula of Duodenojejunal Angle C Proux and N D Hoang—p 446

### Roentgenologic Visualization of Small Intestine

Ghelew and Mengis say that the methods hitherto employed in the roentgenologic visualization of the small intestine have failed to give satisfactory results. Their aim was to avoid these difficulties. To avoid the pylorus they injected the opaque substance directly into the small intestine in a continuous stream. The examination is made on fasting patients who the evening

before have been given a laxative (castor oil or epsom salt). If this purge has been without effect, an enema is given before the examination. It is important that the large intestine is empty. A duodenal tube with an exterior diameter of 5 mm (interior 3 mm) is introduced. The entrance of air into this tube or sound is avoided by closing the external end by means of a forceps. Once the sound has reached the duodenum under roentgenologic control, 30 Gm of warm castor oil is injected and is eliminated completely from the tube by 30 cc of warm water, introduced immediately after. The patient rests for from forty-five to sixty minutes. Then a tube is connected with the duodenal sound. This tube is in communication with a container which is 15 meters above the patient's mouth and which holds 150 cc of thorium oxide and from 100 to 120 cc. of warm water. The patient is placed behind the fluoroscopic screen. The forceps is removed and the fluid flows in. If the patient feels distress he should breathe slowly and deeply, so as not to expel the sound. Usually after five or six minutes the opaque substance can be seen advancing rapidly in the small intestine. If the image appears clear, a film may be taken. After ten or fifteen minutes a second roentgenogram is made. At this time the liquid should have reached the ileum, often it is arrested for a time in the terminal portion of the ileum before it goes into the cecum. The fluid may be introduced while the patient is standing or reclining. The authors prefer the first position and have the patient assume the recumbent posture when the exposure is made. At this moment the patient is told to hold his breath and to retract the abdomen. If the patient is not fatigued, a little air may be introduced into the duodenal sound. This reaches the small intestine rapidly and allows a better outline.

## Monatsschrift fur Psychiatrie und Neurologie, Basel

97 321 384 (Jan) 1938

- \*Clinical and Therapeutic Experiences in Cases of Dementia Paralytica at the Innsbruck Clinic 1922 to 1932 F Schmuttermayer—p 321  
 \*Hypochondriasis and Epilepsy R Hirsch—p 367  
 Cerebrolytic Capacity of Cerebrospinal Fluid P Buchler—p 375

### Dementia Paralytica

—Schmuttermayer reports clinical and therapeutic experiences in 295 cases of dementia paralytica at the Psychiatric-Neurologic Clinic of Innsbruck. About 70 per cent were men and 30 per cent women. The predominance of dementia paralytica in males cannot be entirely explained as a result of a higher incidence of syphilis in men, for statistics have revealed that whereas the incidence of syphilis was only 20 per cent higher in men that of paralysis was 130 or even 143 per cent higher. However several other factors have to be considered in connection with the sex incidence of dementia paralytica. The author stresses the rarity of the disease among farmers. Only 22.4 per cent of the cases had received specific treatment during the early stages of the disease and not one had been given treatments that were adequate according to present standards. Since in many cases it proved impossible to determine the time of infection, the periods of incubation can be estimated only approximately. More than 50 per cent of the patients had simple dementia, 8.5 per cent had the dull-euphoric form, 9.1 per cent had the expansive type, 3.4 per cent had a depressive type, 2.4 per cent a paranoid form. The author gives attention chiefly to malarial therapy, to which 263 of the patients were subjected. In evaluating the treatment, one should permit at least five years to elapse before making a final estimate. Treatment with recurrent fever was employed in a few cases and in these it was either preceded or followed by malarial therapy. Rat bite fever likewise was mostly employed as a secondary treatment. Its efficacy compared favorably with that of malarial therapy.

### Hypochondriasis and Epilepsy

—Hirsch investigated whether relations exist between hypochondriasis and epilepsy. The prerequisites for the development of hypochondriasis are despondency, dependence on environmental conditions, selfishness, self criticism, vanity and cowardice. The author says that epileptic patients almost never exhibit hypochondriasis. The psychological foundations of the two disorders are so different that the epileptic character excludes the development of a true hypochondriasis. Among 600 epileptic patients he did not find one who had a hypochondriac neurosis. He illustrates with case

histories that those who at times appeared hypochondriac did not have a hypochondriac neurosis in the true sense but were epileptic patients who exhibited hypochondriac signs only during depressive periods, the signs disappeared together with the depressions. He made all his studies on patients in institutions and suggests that those not in institutions and still socially adaptive might show different psychologic aspects.

### Archivio per le Scienze Mediche, Turin

65 201 422 (Feb.) 1938 Partial Index

- \*Eosinophilia From Ingestion of Liver E. Massobrio and P. Maranzana —p. 201
- Uric Acid in Blood in Metapneumothoracic Pleuritis U. De Michelis —p. 231
- Lactic Acid of Blood in Pulmonary Tuberculosis, Especially in Course of Artificial Pneumothorax U. De Michelis and R. Giaccherio —p. 245
- \*Modifications of Coagulation Time, Bleeding Time and Morphology of Blood After Roentgen Irradiations of Spleen and Hypophysis M. Segre —p. 255
- Aplastic Myelosis: Clinical and Anatomopathologic Study of Cases E. Samek —p. 331

**Eosinophilia from Ingestion of Liver**—Massobrio and Maranzana observed the eosinophils during liver treatment of twenty-five patients suffering from pernicious anemia and also in normal persons. The liver, almost raw or slightly boiled for thirty minutes, was administered with the diet in amounts of 250 Gm. a day. The authors conclude that increased eosinophilia is induced in all patients who are suffering from pernicious anemia, as well as in normal persons, from ingestion of raw liver and in 80 per cent of the cases by ingestion of almost raw liver. It is not induced by ingestion of boiled liver and by the parenteral administration of injectable extracts of liver. Eosinophilia from the administration of liver is not an index to show the favorable effects of the liver treatment. It increases from overstimulation of the parenchyma of the marrow bone by substances of the liver, followed by a reaction of increased production of hemohistioblasts. Eosinophilia from administration of raw liver develops from the allergic action of proteins which are contained in liver and enter the blood in large amounts. It develops by chemotaxis. Splenectomy which was done in the course of administration of liver in dogs failed to induce increased eosinophilia.

**Modifications of Blood from Irradiations of Spleen and Hypophysis**—Segre gave rabbits roentgen irradiations to the spleen and to the hypophysis for fifteen minutes at a distance of 40 cm. from the skin, at doses of 100 roentgens with a current of 3 milliamperes and 150 kilowatts through a filter of 0.5 mm. of zinc and 2 mm. of aluminum. He found that the irradiations cause diminution of the coagulation time, the bleeding time and the number of platelets during the first six hours, after which they slowly return to normal. Within the sixth and twelfth hours moderate erythropenia takes place, which in the course of twenty days returns to normal or to slight erythrocytosis after splenic irradiations and to slight erythrocytosis after hypophysial irradiations. Irradiations to the spleen are followed during the first few hours by oscillations of the number of leukocytes, which are followed by leukocytosis and relative or absolute pseudothrombophilia followed by relative or absolute lymphocytosis. The leukocytic formula remains normal in the largest number of cases after irradiations to the hypophysis. Irradiations to the spleen or to the hypophysis induce slight monocytosis. By the thirteenth day the morphology of the blood and the number of erythrocytes are normal. Erythroblasts may be present in the blood of some animals in the course of the treatment. Slightly increased polkocytosis and polychromatophilia appear frequently after hypophysial irradiation.

### Minerva Medica, Turin

1 169 196 (Feb. 17) 1938

- \*Influence of Exogenous Superinfection in Pathogenesis of Pulmonary Tuberculosis in Adults E. Filla —p. 177
- \*Variations of Sodium Chloride in Blood After Surgical Interventions F. De Lorenzo —p. 182

**Exogenous Pulmonary Tuberculosis in Adults**—Filla states that exogenous superinfection is a frequent cause of pulmonary tuberculosis in adults ranging in age from 15 to 25 years and rare after that. The disease shows typical early

tuberculous infiltration of Assmann's type. When the bacilli are virulent or the patients are in a state of receptivity, bronchopneumonic lesions which follow a serious evolution develop. Tubercle bacilli of exogenous or endogenous origin may remain for a long time in the body of a person with good immune biologic resistance, without causing tuberculosis, or causing only transient nontuberculous symptoms. The behavior of the large number of tubercle bacilli that enter the body from superinfection depends on the receptivity of the patient when superinfection takes place and for a long time after that, as the latent disease may develop as soon as infection becomes stronger than immunity. The dynamic energy of tuberculous infection or superinfection plays the most important part in the development of tuberculosis in children. For the development of the disease in adults, the individual factor plays the most important part.

### Sodium Chloride in Blood After Surgical Intervention

—De Lorenzo found that after surgical intervention the amount of sodium chloride in the plasma and in the total blood diminishes in all cases, whereas it increases in the erythrocytes. The diminution is proportional to the gravity of the condition, the severity of the operation and the development of postoperative complications. It is unrelated to the type of anesthesia used and is caused by disturbance of the acid base equilibrium with consequent acidosis. Injections of hypertonic solution of sodium chloride reestablish the acid base equilibrium.

### Archivos Argentinos de Pediatria, Buenos Aires

9 398 (Jan.) 1938

- Semiotologic Schema of Neuropsychic Parallelism in Children A. Gareis and F. Escardo —p. 3
- Muscular Hypertonus of Nutritional Origin in Infants J. P. Garrihan —p. 7
- \*Placental Extract in Prevention of Measles F. Bazan and E. Sujoy —p. 12
- Congenital and Acquired Heart Disease: Retrospective Diagnosis M. Acuña and A. Puglisi —p. 21
- Osgood Schlatter's Disease with Double Localization: Case E. A. Beretevide and J. J. Reboiras —p. 26
- Congenital Microcolon J. R. Abdala, O. A. Itoiz, J. C. Pellerano and S. Schere —p. 33
- Treatment of Juvenile Obesity S. Schere —p. 42

**Prevention of Measles**—Bazan and Sujoy administered intramuscular injections of placental extract to 125 children. Satisfactory results were obtained in sixty-four of seventy-nine cases in which the treatment was administered for prevention of measles. The latter was greatly modified in fourteen of fifteen cases in which contagion occurred after administration of the injection. The treatment was given in the course of the disease in forty-six cases and the evolution of the disease was favorably modified in forty-three. The earlier the injections in relation to exposure to contagion and in the course of the disease the better the results obtained. The latter is harmless and does not induce reactions.

### Bol. Inst. de Med. Exper. p. Cancer, Buenos Aires

14 257 588 (Sept.) 1937 Partial Index

- Regression and Reabsorption of Malignant Tumors by Hydrolyzates of Striped Muscles A. H. Roffo —p. 257
- Action of Proximal Roentgen Treatment on Malignancy of Cancerous Cell Cultured in Vitro A. E. Roffo Jr. —p. 277
- Action of Short Waves on Basal Metabolism A. E. Roffo Jr. —p. 292
- \*Biologic Reaction for Gastric Cancer R. Redi and A. Contino —p. 495

**Biologic Test for Gastric Cancer**—Redi and Contino's test consists in the injection into an inguinal lymph node of 1 cc. of an extract prepared from cancerous gastric tissue with removal of the lymph node fourteen or eighteen days later for microscopic examination. The authors found that in patients suffering from cancer of the stomach the injections of a substance from extracts of normal stomach do not induce change in the lymph node, whereas the injected cancerous extract induces macroscopic and microscopic changes. In all cases the size of the lymph node is increased and there is tumoral infiltration of the node. The intranodular injection of either substance induces no reaction in normal persons. The authors believe that the test is specific for gastric cancer, which probably sensitizes the lymph node.

**Archiv fur Kreislaufforschung, Dresden**

2 1156 (Dec) 1937 Partial Index

- Vector Diagraphy as Practical Clinical Method Normal Vector Diagram F Schellong E Schwingel and G Hermann—p 1
- Significance of Ligamentum Arteriosum of Botallus Duct and Its Insertion in Wall of Pulmonary Artery as Depressor Nerve in Various Animal Species M Takin and S Watanabe—p 18
- Physical Chemistry and Peripheral Circulation K Hasebroek—p 28
- Symptoms of Alteration in Ventricular Complex of Human Electrocardiogram A Spang and C Korth—p 47
- \*Studies on Heart in Hypoglycemic Shock with Particular Reference to Electrocardiographic Observations in Insulin Therapy of Schizophrenia Electrocardiogram During Metrazol Shock Therapy of Schizophrenia W Hadorn—p 70

**Electrocardiogram in Insulin and Metrazol Shock**—Hadorn reports investigations which indicate that insulin hypoglycemia signifies a cardiac impairment To what extent the cardiac damage is caused by insulin and to what extent by hypoglycemia has not been determined Changes in the T wave of the electrocardiogram are generally ascribed to insulin, but since these are reversible, many authors do not regard them as a manifestation of myocardial impairment He found that tachycardia and increased blood pressure often result from the insulin therapy of schizophrenia They are elicited by the hypoglycemia and the reactive excretion of comparatively large amounts of epinephrine, but they usually disappear within a few hours After mentioning the electrocardiographic changes in insulin hypoglycemia, the author says it cannot be denied that these changes signify either a cardiac lesion or a temporary impairment of the function This implies that hypoglycemia should be avoided in cardiac impairment and that great caution is necessary in the administration of large doses of insulin He made electrocardiographic studies also in metrazol shock He found that metrazol shock therapy does not cause the same electrocardiographic changes as does the insulin shock, nevertheless it does cause changes, particularly in the auricular activity The electrocardiograms that are made after metrazol shock reveal chiefly sinus tachycardias and a tendency to extrasystoles and auricular fibrillation Changes in the S-T section and in the T wave which characterize insulin shock, are absent The auricular fibrillation that results from metrazol treatment usually yields to quinine In insulin shock therapy and also in metrazol shock therapy it is not yet possible to render a definite estimate about the possibility of a permanent cardiac and vascular impairment

**Klinische Wochenschrift, Berlin**

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- Tonus of Sympathetic Centers W Fasshauer—p 260
- Clinical Aspects and Pathology of Myasthenia Gravis K Nowotny and F K Redlich—p 262
- Vitamin C and Number of Leukocytes H Schnetz—p 267
- \*Hypovitaminosis and Osteomyelitis W Wachsmuth and G Heinrich—p 269
- Bacterium Pneumointes as Cause of Posttraumatic Meningitis H Heubach—p 271
- Etiology of Agranulocytosis C Bresgen—p 273

**Hypovitaminosis and Osteomyelitis**—Wachsmuth and Heinrich cite Takahashi's experiments on the pathogenesis of hematogenic infectious osteomyelitis Takahashi demonstrated that the resistance toward bacterial infections is reduced when there is a deficiency of vitamins A, B and C Metastases occurred in the long bones especially in C avitaminosis Metastases in the bone marrow developed after intravenous administration of suspensions of staphylococci in 100 per cent of the avitaminotic animals but in only 44.4 per cent of the controls The lack of vitamins, particularly of vitamin C, produces a locus minoris resistentiae at the end of the long bones so that they are especially subject to infection This is understandable in view of the changes in the medullary structure observable in avitaminosis Takahashi's experimental observations were corroborated by a clinical case observed by the authors A man aged 24 acquired a streptococcal osteomyelitis following scarlet fever Four months later the patient complained of pain in the arm and still later of pain in the right leg Roentgenoscopy disclosed sequestration in both arms and legs Besides a slight swelling there were no other clinical signs at the four sites of the osteomyelitic process The sequestrums were removed and examination of the pus yielded hemolytic streptococci Noteworthy is the symmetric involvement of both radii and both tibiae The authors say that in view of a starvation diet, which the patient had undergone for five weeks, a hypovitaminosis

was present Experimental and clinical observations indicate that disturbances in the vitamin metabolism may make the bone marrow more susceptible to infections It may be concluded that hematogenic osteomyelitis is dependent on factors that hitherto were disregarded When these factors are considered, surgical treatment alone is not sufficient A suitable diet during infectious diseases may be a valuable aid in preventing metastases in the bone marrow

**Munchener medizinische Wochenschrift, Munich**

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- Pathogenesis of Diabetes Mellitus F Hoff—p 161
- \*Diagnosis of Dental Infection by Short Wave Provocation K Gutzeit—p 164
- Preventing Allergy to Insulin H Malten—p 166
- Differential Diagnosis of Poliomyelitis H G Huber—p 167
- Injurious Effects of Iodine from Use of Toobpastes Which Contain Iodine E Muller Stade—p 173
- \*Should Pulmonary Abscesses Be Treated by Pneumothorax? K Kollmeier—p 179

**Diagnosis of Dental Infection by Short Wave Provocation**—Gutzeit directs attention to an earlier description of this method published in the *Munchener medizinische Wochenschrift* (84 961 [June 18] 1937 abstr THE JOURNAL Aug 14, 1937 p 543) and then describes further experiences which again revealed the following factors 1 Short wave irradiation of healthy teeth with living dental pulps does not cause a general reaction that becomes manifest in an acceleration of the sedimentation speed of the erythrocytes 2 Some of the teeth that have granulomas or the pulp of which is dead or diseased show, after short wave irradiation, a noticeable general reaction which is indicated by an acceleration of the sedimentation speed 3 However, in some of the teeth, which roentgenoscopy has revealed as diseased, short wave irradiation does not result in an acceleration of the sedimentation speed These observations indicate that, whereas the irradiation of healthy teeth produces no general reaction, there are some diseased teeth which do produce a reaction and other diseased teeth which do not The author concludes that those diseased teeth which as the result of short wave irradiation cause an acceleration of the sedimentation speed exert an unfavorable effect on the organism In case of a negative outcome of the short wave provocation of diseased teeth, two possibilities must be considered either the tooth under observation contains no toxic substances and has no connection with the lymph and blood vessels of the general organism, or the method of short wave irradiation may have been faulty The author deplors that such methodical errors cannot be entirely avoided with the present equipment Discussing the value of the short wave provocation, he says that extraction of the teeth which gave a positive reaction did not always produce improvement in the general condition, if the lymph nodes have already become infected, or if new foci have already developed in other parts of the organism, the removal of the primary focus would not counteract these secondary foci Nevertheless, if it is used with care and if methodical errors can be avoided, it is a valuable diagnostic aid

**Pneumothorax in Pulmonary Abscess**—After citing various treatments suggested for pulmonary abscess, Kollmeier says that pneumothorax therapy is advised by few owing to the fact that the dangers of this method are frequently stressed It is pointed out that pneumothorax therapy in pulmonary abscess readily leads to an involvement of the pleura and to empyema Pneumothorax therapy of pulmonary abscess was used as early as 1833, long before pneumothorax was introduced into the treatment of pulmonary tuberculosis The author resorted to pneumothorax therapy in seven of ten cases of pulmonary abscess that came under his observation In all except one of the cases the abscess was either in a central location or near the hilus He thinks that this localization of the abscesses was chiefly responsible for the especially favorable action of the pneumothorax therapy Involvement of the pleura was observed in none of the cases After the pneumothorax was induced there always was an improvement in the general condition and in some cases the cough and expectoration disappeared Moreover, the fever usually decreased and the appetite improved Only small quantities of air should be introduced The pressure should remain negative, at any rate, no great pressure should be exerted on the lung Refilling should be

continued until the fever has subsided and cough and expectoration have disappeared. Pneumothorax is indicated in abscesses with a central or juxtahilar location, but in juxtapleural abscesses it should be used with the greatest caution or not at all.

### Zentralblatt für Gynäkologie, Leipzig

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- Significance of Highest Number of Uterine Contractions in Premature Rupture of Bag of Waters but in Normal Width of Pelvis A Wiessmann —p 450  
Intra Abdominal Radium Irradiation in Cervical Carcinoma. T Daels —p 453  
Roentgen Rays in Determination of Maturity of Intra Uterine Fetus H W Kleist —p 468  
\*Diagnosis of Pregnancy by Means of Infusoria According to Kustallow H von Wattenwyl —p 477  
Value of Kustallow's Pregnancy Reaction by Means of Infusoria Olive Hinck —p 478  
Practical Value of Pregnancy Reaction of B Friedrich (Modification of Visscher Bowman Reaction) M Rodecurt —p 479

**Diagnosis of Pregnancy by Means of Infusoria**—Von Wattenwyl investigated the reliability of the pregnancy reaction by means of infusoria described by Kustallow (*Zentralblatt für Gynäk* 61 269 [Jan 30] 1937, abstr *THE JOURNAL*, April 10, 1937, p 1307) and concluded that it was unreliable.

### Novyy Khirurgicheskiy Arkhiv, Dnepropetrovsk

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- \*Anastomoses Between Bile Ducts and the Gastrointestinal Tract T M Falman —p 3  
\*The Motor Function of a Stomach After Resection F Vitkin —p 50  
Migrating Thrombophlebitis and its Treatment G E Ostroverkhov —p 76  
The Microflora in Odontograms of Osteomyelitis of the Jaws S Z Gutkin —p 88  
The Mechanism of Action of Hetero Blood Transfusion B G Veksner —p 96  
Gastric Resection and Hemopoiesis B A Petrov —p 104

**Anastomoses Between Bile Ducts and Gastrointestinal Tract**—Talman reports a study of sixty-five cases of anastomosis between the bile ducts and the gastrointestinal tract performed at the Feodorov Surgical Clinic of the Military Medical Academy, Leningrad, between 1905 and 1935. The operation was performed in twenty-five cases because of a malignant tumor, while in thirty-nine the condition was benign. There were seventeen cholecystogastrostomies, fifteen cholecystoduodenostomies, eight cholecystojejunostomies, two choledochogastrostomies, twenty-one choledochoduodenostomies and two hepatocoloenterostomies. He believes that cholecystogastrostomy for the treatment of gastric ulcer has not justified itself. It is apparent from several clinical studies that reduction of the gastric acidity is not accomplished either because the amount of bile necessary for the reduction is not adequate or because of the stimulating effect of bile on the gastric juice secretion. Other objections are the chronic infection of the gallbladder which invariably takes place and the regurgitation of the gastric contents into the bladder and in some cases into the bile tracts. The advantages of choledochoduodenostomy are offset by the fault that it permits the entrance of the gastric and duodenal contents into the intrahepatic bile channels. His studies established that this occurred in sixteen of twenty-five cases studied. The follow-up study further demonstrated that in many cases this condition does not lead to an acute infection of the biliary tracts, while in others it gives rise to attacks of cholangitis with colic, chills, fever, jaundice and, in a few cases, liver abscess. Many of these patients have chronic cholangitis which however does not give rise to severe flare ups and to significant symptoms. The author concludes that formation of anastomosis between the bile ducts and the gastrointestinal tract represents a crude mechanical interference with the complicated biliary system and its many functions. It is indicated only in cases of obstructive jaundice caused primarily by a malignant neoplasm and in certain benign lesions capable of producing grave disease states.

**Motor Function of Stomach After Resection**—Vitkin presents a study of seventy-four patients in whom partial gastric resection was performed. The type of operation was the second method of Billroth in sixty-seven and the Polya-Reichel modification in seven. There were ten subtotal resections. Each patient was examined before the operation as to the gastric secretion, the presence of occult blood in the feces, the blood

picture, the roentgenoscopic appearance of the stomach with particular attention to its motor function, the size of the stomach, its motility, tonus and peristalsis, the emptying and the relief of the gastric mucosa. Similar observations were made after the operation at periods varying from two weeks to six years. Thirty-eight patients were examined from two to five times after the operation. Altogether there were 132 roentgenologic examinations on a stomach after resection. The author found that the stomach empties rhythmically after the second Billroth operation or after one of its modifications. He believes that it is not necessary to resort to complicated methods (Finsterer or Goetze) to accomplish the rhythmic emptying. The rhythm of emptying apparently does not depend on the extent of stomach removed, as it was in evidence after a subtotal resection. There are no data which speak in favor of formation of a sphincter in the region of the anastomosis. He feels that it is entirely unlikely after a resection according to the second method of Billroth. The periodic closure and opening of the anastomotic stoma is due to the peristaltic contractions and dilations of the nearest loop of the efferent limb of the bowel. Spasm of the anastomotic stoma after resection for a malignant condition is an early sign of a local recurrence. The majority of the patients have a hyperplastic gastritis which as a rule does not give rise to subjective sensations. The rhythmic emptying of the stomach after resection according to the second method of Billroth or its modification is paralleled by the excellent state of the health of the patients.

### Nederlandsch Tijdschrift v Geneeskunde, Amsterdam

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- Significance of Blood Serum and Lymph in Action of Digitoxin and Dye stuffs on Heart of Frogs R A Hoekstra and P Brugman —p 840  
New View of Epilepsy D M Van Londen —p 846  
Method of Staining Erythrocytes in Urinary Sediment A W Erdt —p 856  
Glycosuria After Insulin Coma S Lups —p 858  
\*Liver Therapy in Hypochromic Anemia J J De Jong —p 863  
\*Polyneuritis of Pregnancy and Korsakoff's Psychosis P A Van der Hoeven —p 873

**Liver Therapy in Hypochromic Anemia**—De Jong emphasizes that liver therapy remains the treatment for hyperchromic anemia, that is, for those anemias in which the color index is above 1. He deplors the fact that it is often indiscriminately used in other forms of anemia and points out that Castle and Minot warned against this by emphasizing that the time to establish the exact diagnosis in anemia is before treatment is begun, not after the blood picture has been obscured by indiscriminate medication. He shows that in hypochromic anemia medication with iron and not with liver is advisable. In cases in which iron therapy does not counteract the hypochromic anemia the factor responsible for this failure should be investigated. If carcinoma, bleeding ulcer and polyps of the intestinal tract, or conditions like hypothyroidism, tuberculosis and chronic nephritis can be excluded, and still the response to iron is not adequate, liver may be tried in addition to the iron, but such cases are comparatively rare.

**Polyneuritis of Pregnancy and Korsakoff's Psychosis**—Van der Hoeven describes the history of a woman, aged 30 who for years had exophthalmic goiter. In June 1936 she became pregnant and emesis set in which soon assumed the character of hyperemesis. The patient was hospitalized and her condition improved so she was able to take food. However, psychic disturbances set in and later the hyperemesis recurred. In view of her poor condition it was decided to interrupt the pregnancy. At first there was improvement but the psychic disorder became more severe and the typical signs of Korsakoff's psychosis appeared. Moreover, the patient complained of severe pains in her arms and legs accompanied by formication and severe sweating. Examination revealed reduced strength of the muscles and abolishment of the tendon reflexes. A diet with high vitamin content produced some improvement but because of persisting parietic conditions hyposthesia and other disorders medication with a vitamin B preparation was begun. Under the influence of this treatment the disturbances gradually subsided. Thus clinical picture he believes results from a deficiency in vitamin B. Further, the induced abortion is a factor in the development of the picture. He suggests that B avitaminosis might play a part in the development of hyperemesis gravidarum.

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## ENDOCRINOLOGY AND THE UNDER- STANDING AND TREATMENT OF THE EXCEPTIONAL CHILD

LOUIS A LURIE MD

Director of the Child Guidance Home and Assistant Professor of  
Psychiatry University of Cincinnati College of Medicine

CINCINNATI

The trend at present in child guidance work is apparently toward the psychologic or, more specifically, toward the psychoanalytic interpretation of behavior disorders in children. A glance at the literature on the subject of orthogenics is more than sufficient to convince the most skeptical that the problems of maladjusted, unadjusted, antisocial and asocial children are apparently all on the basis of emotional conflicts—conflicts due to infantile fixations, sexual repressions, maternal rejections and sibling rivalry. Apparently, human behavior can be explained only in terms of suppressions, frustrations, rejections, identifications, feelings of hostility, feelings of inferiority and inadequacy and the like.

That these conflicts are potent and frequent factors in the causation of abnormal behavior no one can deny, neither will any one deny that the psychologic approach to the study of human behavior has been fruitful of great results. On the other hand it must also be admitted that not all human reactions are merely conditioned emotional responses. Many reactions are conditioned by other factors such as somatic, endocrine and neurologic conditions. Organic factors may and do have a vital part in producing types of behavior that are inefficient, inadequate and abnormal.

The environmentalist, with his social approach to the study of the problem child, was the first to supplant the organicist, and now he in turn is being supplanted by the psychologist and the psychoanalyst. Each one, as he supplants the other, does not deny him entirely but nevertheless relegates him to a minor position.

Is such an attitude the proper one? Is this the path which persons entrusted with child guidance should follow?

If one pauses for a moment and defines what is meant by human behavior, one soon realizes that the answer to these questions must be in the negative.

Human behavior is the resultant of the interaction between the individual and his environment. In the words of Herbert Spencer, "Life is the adjustment of man to outer relations." This constant adjustment and readjustment is the process of living. Life

expresses itself in conduct or behavior, hence, if one is to understand human behavior either in its normal or in its abnormal phases, one must study in detail both the individual and his environment. Furthermore, it must be realized that man is more than a biologic organism, he is also a social being, growing and adapting himself to a specific environment. Hence, fully to understand human behavior one must study the individual as a psychophysical organism that is attempting to adjust to a specific environment. This is what is meant by the psychobiologic approach to the study of human behavior.

When such a well rounded approach is employed, rather surprising facts regarding the relative frequency of organic, psychologic and environmental factors in the causation of behavior disorders are elicited.

For example, the statistics of the Child Guidance Home in Cincinnati show that in 49 per cent of the cases of behavior disorders studied the underlying causative factors were found to be endogenous, or psychophysical, in origin. In only 23 per cent of the cases were the causes exogenous, or environmental. In the remaining 28 per cent, both endogenous and exogenous factors were responsible for the behavior difficulties.

Furthermore in approximately 75 per cent of the cases in the endogenous group the causes were organic. Psychologic factors as the primary cause constituted only a relatively small percentage. This finding is of especial importance in view of the present tendency to stress the psychologic approach in the study of behavior disorders in children.

The successful child guider is he who understands that the total integrated personality is a composite of the totality of the individual, that is, soma and psyche, plus the totality of the environmental situation. In other words, the molding of the personality is the resultant of the interactions of two dynamic systems, namely, a psychologic organism and a socio-economic physicochemical environment, working conjointly to produce in the child a type of reaction that gives him his distinctive personality. These two dynamic systems are composed of numerous separate component parts, each of which is capable of changing or modifying the personality. It is hardly necessary to point out the effect of climate, geographic location, economic status and many other environmental factors on the personality. Likewise every physician is acquainted with the devastating effects of such diseases as encephalitis on the personality make-up. Furthermore, the work of Stockard, Kretschmer and others has demonstrated that certain patterns of abnormal behavior may conform with certain types of physical structure or constitution. Similarly the endocrine glands have their part in the determination of the pattern types of behavior.

Read at the Fourth Institute on the Exceptional Child, New Contributions of Science to the Exceptional Child, held under the auspices of the Child Research Clinic of the Woods School, Langhorne, Pa., Oct. 26, 1937.



An analysis of the first thousand cases of behavior disorders in children studied at the Child Guidance Home in Cincinnati showed that endocrine disturbances of various types and degrees of severity were present in approximately 20 per cent. In approximately 10 per cent of the cases the glandular disturbances were the principal causative factors. In other words, in about 100 cases of this series there was apparently a direct etiologic relationship between the endocrinopathy and the behavior difficulty presented by the child. For this reason, as far back as 1927, I said that "no examination of a problem child can be considered complete unless a careful endocrine study has been included."<sup>1</sup>

Why such a study is essential is readily understandable when one realizes the importance of the glands of internal secretion in the growth and development of the child. The influence of the endocrine glands starts, in fact, long before birth. The potentialities which the infant brings into the world have in a large measure been developed as a result of hormonal influence on the fetus in utero.

It is safe to say that hardly a single bodily function is not directly or indirectly influenced by these glands. They are concerned with differentiation of tissue, with nutrition and growth, with sexual activity and with mental development. In brief they are bound up with all development, physical as well as mental.

Gigantism and dwarfism are the results of opposite extremes of functioning of the pituitary gland. Sexual infantilism may be due to deficiency in the secretion of the sex hormone of the same gland. On the other hand, this condition may be produced through failure of function of the sex glands themselves. Every gland of internal secretion, as a result either of overactivity or of underactivity, can modify the growth and functioning of the various tissues and organs of the body.

When one attempts to correlate specific forms of endocrine disorders with definite types of personality disturbances, it is essential to clarify the situation by first recognizing that the effects of endocrine dysfunction on the personality are of two kinds. The effects may be classified as (1) direct and (2) indirect.

It is well known that the mental retardation of the cretin is due to lack of thyroid hormone. Hypoparathyroidism may lead to great irritability, restlessness, emotional instability and even to a hypomanic state, while the opposite condition, hyperparathyroidism, may lead to sluggishness, a depressed emotional state and great mental apathy. In conditions of hyperinsulinism, mental symptoms are frequently present. These may vary from vague neurotic complaints to mild psychotic manifestations. They represent the direct effects of the endocrine dysfunction on the personality.

In addition to the effects just described, there may be indirect effects. These include the mental attitude that the child adopts toward the physical abnormality produced by the glandular malfunction. The abnormality often produces emotional conflicts of great severity, with resultant marked personality changes and abnormal behavior.

The indirect effects are of tremendous significance, as they often determine the child's outlook on life and furnish the motif for his behavior.

If one bears this in mind it is not difficult to understand why the adolescent boy who is suffering from

eunuchoidism as a result of gonadal insufficiency should have a marked feeling of inferiority, which in turn leads him to shun his companions, to become morose and gradually to withdraw from the world of reality and live in a world of fantasy. For the same reason the girl whose face is disfigured because of a growth of coarse hair as a result of an adrenocortical involvement may become so intensely self-conscious and morbid that she attempts suicide.

One must recognize not only the effects of hormone dysfunction on the mood, thought and behavior but also the reactions of the child to the knowledge that he is suffering from a disturbed bodily function. The former constitute the direct effects, the latter the indirect effects. Some children may show only one type of disturbance or effect, but most often both types are present.

The failure to distinguish between the direct and the indirect effects of the endocrine dysfunction on the mental and emotional make-up has led to considerable confusion in thought regarding the specificity of the correlations between endocrinopathic states and personality and behavior disturbances. As will be shown later, certain broad changes in the personality accompany pituitary disorders as well as other endocrine disturbances with such regularity that they must perforce be looked on as causally related. The clinical picture presented in such cases may vary, however, because of the varying intensity of the indirect effects of the endocrine dysfunction which may be superimposed on the direct effects. The former may be looked on as the subjective effect on the child of the knowledge of his incapacity or infirmity. Obviously, this will vary with each child and will depend largely on his native or constitutional endowment on his past experiences and on his social milieu. The indirect effects lead to a feeling of inferiority in the true adlerian meaning of the term. To what extent the organic inferiority will develop and what mental mechanisms may be produced as a result can be predicted only when the totality of the situation is known.

The personality is often profoundly altered by physical deformities. The tendency toward self-pity that so readily develops may lead to introversion, to withdrawal from the realities of life and to neurotic manifestations.

On the other hand, the personality may be modified along definitely antisocial lines. Incurability, delinquency and even criminality may be the "end results of interference with the normal development of the ego instinct of the personality."

Obviously, it is impossible in a paper of this nature to discuss in detail all the various endocrinopathies as they may affect the personality make-up and the ability of the child to make normal progress educationally, socially and emotionally. However, I do wish to describe some of the commoner forms of glandular disturbances that exceptional children may present.

One of the best known members of the endocrine fraternity is the thyroid gland. The structure and the functions of this gland have long been known to scientists. Especially well known has been the relationship of thyroid deficiency to mental retardation. The degree of mental retardation depends on the degree of thyroid deficiency, the greater the deficiency in the thyroid secretion, the greater the degree of mental retardation. This relationship is exemplified in cretinism and in myxedema in children. The literature con-

<sup>1</sup> Lurie, L. A. The Relation of Endocrinopathic States to Conduct Disorders of Children. *Am. J. Psychiat.* 9: 285 (Sept.) 1929.

tains many reports of marked improvement in the intellectual status as a result of thyroid medication. These conditions are as a rule not difficult to recognize, because when the mental impairment is severe the impairment in physical growth and development is so marked that the diagnosis is readily made. However, cases of such severe deficiency are, fortunately, relatively few in number and hence are not of very vital concern. It is the milder forms of hypothyroidism, forms in which the symptoms of thyroid deficiency are not so evident, that merit study, both because they are so numerous and because they are so easily corrected once they are recognized. What teacher has not come in contact with the child who is slow thinking and irritable, shows some form of speech defect, does not respond to the usual form of classroom discipline and is a school failure? Such children merit an endocrine examination because often they are suffering from varying degrees of thyroid deficiency.

In this connection I wish to call attention to a clinical syndrome in which extreme motor restlessness, destructiveness and speech disturbance are the outstanding symptoms. This triad of symptoms when present in young children almost always indicates a state of hypothyroidism. The child is very restless. Often the restlessness is so marked that he has to be forcibly restrained. He is careless with his possessions to the point of destructiveness. The complaint, however, for which most often the physician is consulted is that he shows some form of speech involvement, an involvement that may range from inability to pronounce certain letters and sounds to speech blocking and even to complete inability to speak.

The following two brief case reports illustrate this clinical syndrome.

**CASE 1—J W F**, a white boy, aged 5 referred for examination because of a marked speech defect according to the history had had a normal birth. He teethed and walked at the normal time. Talking, however, was markedly delayed, and even at the age of 5 he was difficult to understand. He was irritable and exhibited severe temper tantrums, especially when he was not understood. Destructiveness was not an outstanding characteristic, although he was careless with his toys.

On examination it was found that the child was unable to pronounce the letters C, K, J and S as well as all the linguals. His intelligence quotient as determined by the Stanford revision of the Binet Simon test was 120. The endocrine examination showed that he was suffering from mild hypothyroidism. As a result he was given thyroid extract. He responded nicely to the therapy. Not only did the speech defect disappear but also the purely physical symptoms, such as the delayed bone growth and the hypotonus.

In this connection I want to emphasize especially that seldom do clinicians associate restlessness with hypothyroidism. We usually think of restlessness as a symptom of hyperthyroidism. In children, however, hypothyroidism may have as one of its outstanding symptoms a severe form of restlessness, and the other two symptoms named are generally associated with it.

The parents were cautioned not to permit the child to attend kindergarten. Rather, they were advised to wait until he had completely overcome the speech defect before having him enter school. The reason for this advice was that children who enter school while suffering from a speech defect are apt to acquire a feeling of inferiority both because they become conscious of their handicap and because the other children ridicule them. When a feeling of inferiority develops, other

speech difficulties enter into the problem and make the cure very difficult. This particular child did not attend kindergarten but entered the first grade of school free from all speech impediments.

**CASE 2—J D**, a white boy, aged 4, referred for examination because he did not speak, according to his history had had a normal birth. His development, however, was markedly delayed. He did not teeth until he was 12 months old and did not walk until he was 20 months old. He first began to utter sounds at the age of 2½ years. He was very nervous and sucked his thumb, and there was a constant drooling of saliva. He was extremely restless, even in his sleep. At times he apparently would deliberately bump his head against the table chairs or wall. This occurred especially when he was excited. He fought constantly with every one and particularly with his younger brother. He was also very destructive.

Endocrine examination revealed the fact that the boy was suffering from severe hypothyroidism. There was no evidence of any organic involvement of the central nervous system (I mention that in passing because the developmental history would tend to indicate some trauma at birth. However, careful neurologic examination failed to reveal any evidence of such injury.) A psychometric test could not be made because the child was uncooperative.

The child was given appropriate glandular therapy and soon began to show a slow but steady physical and mental improvement. Today, at the age of 7, he speaks fluently and has been entered in a special school. His intelligence quotient is 85.

These cases are two examples of the triad of clinical symptoms—motor restlessness, destructiveness and speech defects as evidence of hypothyroidism, and in a number of such cases there has been improvement in the ability to speak as well as in the other symptoms as a result of appropriate glandular therapy.

Although the thyroid gland is the best known of the endocrine glands, today the pituitary gland is receiving the most attention. It has been called, and I think justly so, the "master gland" of the body. It not only secretes many hormones that are of vital importance to the growth and development of the body but also secretes substances that either initiate the activity of other ductless glands or stimulate other glands to greater activity.

By far the commonest form of pituitary disturbance in children is the so-called Froelich's dystrophy, or dystrophia adiposogenitalis. This condition may originate during childhood or adolescence and is of especial interest from the psychological and psychiatric standpoints because of the distinctive personality characteristics and types of behavior with which it is frequently associated.

Allan Rowe<sup>2</sup> found that of sixty-eight children suffering from endocrinopathies associated with behavior disorders fifty-three showed pituitary dysfunction. In a similar study at the Child Guidance Home,<sup>3</sup> I showed that pituitary disorders also constituted the dominant majority.

The true Froelich's syndrome is characterized by a triad of symptoms, namely, dwarfism, genital infantilism and adiposity of the mons-mammary girdle type. In other words, the fat is distributed principally on the breasts, abdomen and hips. Such children are small, fat and fair and have a distinctive personality make-up. They are as a rule cheerful happy and apparently contented their dispositions fitting in with the universal belief that fat boys and girls as well as fat adults are

<sup>2</sup> Rowe, Allan W. A Possible Endocrine Factor in the Behavior Problems of the Young. *Am J Orthopsychiat* 1: 451 (Oct.) 1931.  
<sup>3</sup> Lurie, L. A. Endocrinology and Behavior Disorders of Children. *Am J Orthopsychiat* 5: 141 (April) 1935.

jolly, good natured and well behaved. Their reactions are slow, and hence they may be irritating and annoying to persons who feel that their slowness of response is indicative either of lack of interest or of carelessness. In fact, such children, because of their slowness, may give the impression that they are mentally retarded, whereas in the majority of cases the opposite is true. David Levy<sup>4</sup> reported that in a series of thirty-three cases of Froelich's dystrophy, studied at the Institute for Child Guidance, only five boys were below the average in intelligence while seventeen were in the superior group. This was a predominantly higher score than that for the entire series of patients at the Institute for Child Guidance, for which there is a median intelligence quotient of 99.

At this point I should like to call attention to the fact that when a child is given a psychometric test he is required not only to answer the questions correctly but also to answer them in a reasonable length of time. In other words, not only correctness but also quickness of response is essential in order to obtain a good score.

Children with hypopituitary disturbances of the Froelich type are at a disadvantage in such tests. While their native intellectual ability may be normal, they may fail to answer many of the test questions in the prescribed length of time because of their longer reaction time and hence slower reactions. In other words, while they may be unable to solve in one minute the problem "If two pencils cost 5 cents, how many pencils can you buy for 50 cents?" they can solve it if given another minute or two. Nevertheless, their intelligence quotient suffers and they may be rated as subnormal intellectually or even as mentally defective. Such children often exasperate their parents and teachers because of their inability to learn. The teacher is confident that the child can learn if he only will but she will add mournfully that "it requires the explosion of a ton of dynamite under him to make him get a move on himself." Characteristically, after the explosion of dynamite, the child falls back smilingly into his usual calm, phlegmatic mode of life. It is important to recognize that this characteristic is on a hormonal basis. The sluggishness and long reaction time are not due primarily to the overweight but probably to the fact that the pituitary deficiency results in secondary hypothyroidism. It has been estimated that in hypopituitarism the basal metabolic rate may be lowered as much as 16 per cent. The implications regarding therapy in such cases are therefore obvious.

Another characteristic of these children is that they fall asleep readily and are difficult to arouse in the morning. Often they fall asleep in the classroom, much to the dismay and annoyance of the teacher, who attributes this symptom also to carelessness and indifference rather than to a lack of pituitary secretion.

From the behavioristic standpoint, children presenting the Froelich syndrome can be classified as belonging to the submissive-compliant type. Their lack of aggressiveness is outstanding. They are shy, gentle, easy going, timid and artistic, traits that are usually considered effeminate and which are in harmony with their physical appearance. This is especially noticeable in the case of boys who, because of the broad pelvis, rounded figure, fair smooth skin and rosy cheeks, high-pitched voice and absence of hair on the face and lips, have a distinctly feminine appearance.

As aptly stated by David Levy, "Their social adaptation to life is in the main one of easy compliance and submissiveness." They avoid strenuous physical exercise and the stress and strain of competitive work and sports. They prefer the arts to the sciences.

Their patterns of reaction and personality traits are due to the hormonal deficiency and can be looked on as the direct effects of the pituitary endocrinopathy on the personality.

In contrast to the submissive, compliant personality make-up of children suffering from Froelich's dystrophy is the aggressive, dominant make-up of children with the Loran-Levy type of pituitary dystrophy. In the latter type there are dwarfism and genital infantilism without adiposity. Children suffering from this form of hypopituitarism are as a rule mentally alert. They are forward and aggressive and tend to dominate their environment. They usually capitalize on their infirmity.

The direct effects of the hormonal pituitary deficiency on the child's personality may be intensified or altered as a result of the reaction of the child himself to his own deficiencies in growth and structure. These are the indirect effects and may far overshadow the direct effects of the endocrinopathy. Thus the child who, as a result of the pituitary deficiency, has a submissive, passive, phlegmatic personality may become aggressive, dominant and antisocial because of a feeling of resentment acquired as a result of the knowledge of his structural defects. Passivity, overdependence and submissiveness may be replaced by aggressiveness, truculence and independence, even to the point of delinquency and criminality. Such changes represent attempts to soothe the wounded ego as well as compensation for feelings of inadequacy. On the other hand, the feelings of inadequacy and inferiority, instead of calling out such compensatory mechanisms, may further heighten the submissive-passive type of behavior and make the child more and more dependent on others and therefore less and less able to make normal social adjustments.

How a child will react to his own infirmity will depend largely on the conditioning influences of his environment as well as on his life experience. Hence no two subjects need react alike. One girl may assume a role of careless indifference to the scoffing comments of her friends regarding her overweight and shape, another, because of the same condition, may withdraw completely into herself and find refuge from the jeers of her playmates in a life of fantasy, reverie and neurosis, while still another may attempt suicide. Similarly, the fat boy with the fair skin, the high pitched voice and the small genital organs may become so timid and fearful as a result of the taunts and jeers of his playmates that a shut-in type of personality develops and he refuses to make normal social contacts, or he may resort to bribery, trying by means of candy, treats to the movies and the like to get into the good graces of the gang and thereby stop the constant allusions to his infirmity. Many a youngster has resorted to stealing and has become delinquent in order to carry out such a plan. On the other hand the child, instead of withdrawing into himself or attempting to curry favor through bribery, may become anti-social. Feelings of hostility against society may develop because of the hurt his ego has suffered and he will replace the passive-submissive personality which the hypopituitary condition has instilled on him with a

<sup>4</sup> Levy, D. M. Aggressive-Submissive Behavior and the Froelich Syndrome. Arch. Neurol. & Psychiat. 36: 91 (Nov.) 1936.

aggressive-sadistic attitude that will make him attempt to get even with the world

Therefore it is important to remember that the kind of personality disturbance that may be produced in a child suffering from a pituitary deficiency will depend not only on the direct effects of the endocrine disturbance, which are fairly uniform, but on the severity of the indirect effects on the personality produced as a result of the reaction of the total personality to the abnormality in its own structure and growth

Many kinds of combinations are possible, and it is highly essential from the standpoint both of diagnosis and of therapy to determine the relative importance of the two factors

The following brief case reports are presented to illustrate the foregoing statements

CASE 3—M M, a white girl, aged 16, referred for examination because of a complete change in her personality make-up had apparently always been a perfectly normal girl who had never caused her parents any concern. Her social adjustments and academic progress were all that could be desired. For the past year and a half, however, there had been a marked change both at home and at school. She had become listless and apathetic, was unwilling to exert herself and although tractable, showed no initiative. She appeared mentally dull, and it was only as a result of attending summer school that she was able to pass the third grade at high school. Coincident with these mental and emotional changes there was a rapid and tremendous gain in weight. The menstrual periods had become irregular, from three to four months elapsing between periods. The girl was very conscious of her overweight and refused to go in swimming or to associate with her former friends. Her only companion was another girl who was also markedly overweight. She was careless of her personal appearance. Another outstanding and disturbing symptom was an unusual degree of sleepiness. The girl slept from ten to fourteen hours every night and at times twenty hours. Often she would fall asleep in the classroom.

At examination she was seen to be tall and very obese. The excessive amount of fat had the typical girdle type distribution. The endocrine examination pointed to an involvement of the pituitary gland, with secondary involvement of the gonads and the thyroid gland. Appropriate glandular therapy was prescribed, with resultant improvement in both the physical and the mental symptoms. Weight was lost, menstruation became regular, the tendency to drowsiness disappeared and the girl again became the bright alert person she had formerly been. As a result of the loss in weight she lost her feeling of inferiority and resumed her normal social contacts.

This case brings out clearly both the direct and the indirect effects of a glandular disturbance. The direct effects of the deficiency in the pituitary secretion were marked overweight, drowsiness and sleepiness, menstrual irregularity, listlessness and mental sluggishness. The indirect effects were the development of a feeling of self-consciousness and inferiority which led the girl to shun her friends, to avoid social contacts and to evade those activities, such as swimming, that might bring her defects before the public gaze. With the restoration of the function of the pituitary gland to normal, there was a return to normality in the girl's physical, mental and emotional make-up.

CASE 4—D R, a white boy, aged 16, referred for examination because of the poor and indifferent work which he had been doing at school for several years. He was in the second grade of high school but had managed to get there only by dint of constant special tutoring. Both the principal and the teachers attributed his difficulties at school to lack of interest and concentration. Whenever the father blew him up, there was an improvement in the boy's school work. This improvement, however, was short lived.

According to the history the boy was fairly tractable but was sullen and resentful of authority. It seemed difficult for him to exert himself either physically or mentally. At home he appeared even more sluggish and apathetic than at school. He had a huge appetite and thirst and was especially fond of sweets. He fell asleep readily, and it was difficult to arouse him in the morning. The boy himself admitted the truth of all the charges. In his defense he submitted the statement that he was unable to concentrate for more than ten minutes at a time. He had first noticed this condition when he was in the fifth grade of school. Since then it had become increasingly worse. He claimed that he always tried his best but that when he found that he was not making any headway he lost interest in his school work. In fact, he lost all of his ambition.

Examination revealed that this boy was suffering from the adolescent type of Froelich's dystrophy. As a result he was obese, sexually underdeveloped and mentally and physically sluggish. When tested by the Stanford revision of the Binet-Simon tests he received an intelligence quotient of 85. This rated him as subnormal intellectually. The psychologist stated that his reaction time was unusually long.

This boy has been under treatment for the past year and a half. During this time he has received glandular therapy, to which he has responded nicely. He has fully matured sexually and in addition has become more alert mentally and physically. So far this year there has been no necessity for special tutoring in school. Another psychometric examination has not been made because it is felt that not enough time has elapsed since the first examination for the boy to have completely forgotten the original test questions.

Here is a boy whose adaptation to school, and to his home and hence to life had become very difficult primarily because of an insufficiency of the secretion of the pituitary gland. To many a psychologist an intelligence quotient of 85 would be sufficient explanation for his inability to make normal academic progress. However, this intelligence quotient did not truly represent the boy's intellectual capacity. The same lack of hormonal deficiency that caused him to be overweight and underdeveloped sexually caused him to be apathetic and mentally sluggish and therefore to have a long reaction time. This was reflected in his inability to answer the Binet-Simon test questions in the required length of time, which lowered his mental age and his intelligence quotient.

CASE 5—G B, a white boy, aged 15 years and 6 months, was referred for examination by the juvenile court because he had stolen money repeatedly from his parents, relatives and friends. The stealing had been going on for the past six years becoming more and more pronounced as the boy grew older. All forms of disciplinary measures had been of no avail. Persuasion, reasoning, corporal punishment, cajoling, bribery and exhortations by the minister and by the leader of the Y M C A had been resorted to in turn but with no results. According to the mother, the boy was a kind, friendly, easy-going lad well liked by his companions. He liked to read and enjoyed watching athletic games but never took any active part in them. In fact he refused to do any work that required physical exertion. He always wanted to do his work sitting down. The mother also stated that the boy had a huge appetite and was extremely fond of sweets that he appeared tired and listless and that it was difficult to arouse him in the morning.

Examination revealed that he was a tall fat boy with a female type of skeletal development. His skeletal development in conjunction with the excessive amount of fat which was deposited chiefly over the breasts, hips and abdomen gave him a typically feminine appearance which was heightened by the fact that the skin of the face was smooth, fair and highly colored and by the further fact that the voice was still high pitched. The genital organs were normal but there was no

evidence of any secondary sex characteristics. All the clinical and laboratory tests confirmed the diagnosis of the adolescent form of Froelich's dystrophy.

On questioning, the boy admitted that he had been stealing. Furthermore, he stated that he had a tremendous craving for sweets, especially ice cream, and that he was unable to curb it. In fact he told us with tears in his eyes that the only thing worth while in life was ice cream and that he had to have it. It was pathetic to see a big, fat, handsome looking boy crying over the statement that he loved ice cream more than anything in life and that he had to have it. He claimed that the craving was overwhelming and overpowering and that his sole purpose in stealing money was to have the wherewithal to buy large quantities of candy and ice cream.

In this case it was felt that there was a direct causal relationship between the stealing and the glandular disturbance. This belief was based on the fact that as a result of the deficiency in the hormonal secretion of the pituitary gland the sugar tolerance had increased way above normal. A normal person can eat a certain amount of sugar, but if he eats more than that amount glycosuria will develop—the excess sugar will be spilled over and excreted by the body and a form of diabetes will develop. But this boy could eat huge quantities of sugar without showing any signs of diabetes or glycosuria. The pituitary deficiency was responsible for his huge appetite and especially for his craving for sweets. This craving was innate and elemental and beyond the power of the patient to control. He was driven by an uncontrollable urge to eat more and more sweets. The parents, because of their lack of understanding, were not willing to supply him with unlimited amounts of candy, nor were they able to do so. As a result, the boy resorted to direct, aggressive measures in order to obtain the things he blindly craved. These direct aggressive measures unfortunately were highly antisocial and brought him into conflict with the law.

It thus becomes apparent why all previous methods of discipline had failed. They were all doomed to failure because perforce neither exhortation, bribery nor corporal punishment could ever correct a pathologic condition based on organic changes.

The boy, instead of being scolded, whipped, bribed or threatened with incarceration in a reformatory, was given glandular therapy. As a result his sugar tolerance was lowered to the normal level. This in turn caused him to lose his intense craving for candy and ice cream. There being no further need for money, the stealing stopped automatically.

#### CONCLUSION

I wish to add one thought. In the past decade the discoveries in the field of endocrinology have been kaleidoscopic in their rapidity and startling in their magnitude. Yet endocrinology is far from being a closed book. All over the world physiologists, biochemists and clinicians are carrying on a tremendous amount of research. One can therefore confidently expect the announcement of many more discoveries that will aid in the study and treatment of behavior disorders and personality changes in children.

Doctors' Building, Garfield Place

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**First American Hospital for the Insane**—The first American hospital exclusively for the insane had its beginnings in November 1766, when the governor of Virginia Colony, Francis Fauquier, made an earnest appeal for such a hospital in an address to the House of Burgesses. The hospital was opened for the reception of its first patients Oct. 12, 1773. John de Sequeira, a leading doctor of Virginia, served as the first visiting physician, retaining his post until 1795. James Galt was appointed the first keeper. The functions of keeper and physician remained distinct until the year 1841, when they were combined in the person of Dr. John M. Galt, the first superintendent.—Deutsch, Albert. *The Mentally Ill in America*. New York, Doubleday, Doran & Co., Inc. 1937, p. 69.

## THE MANAGEMENT OF THE SEPTIC PATIENT WITH OTITIS MEDIA

J. H. MAXWELL, M.D.

Assistant Professor of Otolaryngology, University of Michigan Medical School  
ANN ARBOR, MICH.

The medical and surgical management of the septic patient with suppurative otitis media presents a distinctly individualized problem, one which does not submit to the simple solution of adapting the patient to one standardized procedure. I use the expression "the septic patient with otitis media" rather than "the patient with otitic sepsis" in order to emphasize the frequently forgotten fact that the otitis media may be an incident in the course of an infection elsewhere in the body responsible for the patient's sepsis.

The term "sepsis" is used rather broadly to represent a clinical picture manifesting numerous variations. It cannot have the concreteness indicated by such terms as bacteremia and septicopyemia. In the present discussion those patients have been considered septic in whom, during the course of an otitis media, leukocytosis has developed with intermittent fever rising to 103 F or higher at least once daily and who have continued to manifest such evidence of illness without abatement for five days or longer. Those patients who have experienced gradually subsiding fever and leukocytosis following myringotomy are not included.

For the sake of generalization it may be said that a septic patient with otitis media may fall into one of three rather clearly defined groups.

In the first group there is an infectious process, local or general, producing the clinical picture of sepsis antedating the otitis media. This situation assumes great importance when the otologist sees the patient for the first time after the otitis media has become established. Unless a careful and detailed history is obtained he may be led to performing a mastoidectomy or ablation of a sigmoid sinus when the source of the sepsis is extra-aural. This is particularly true in those cases of tonsillitis and suppurative sinusitis producing the picture of sepsis or even an actual septicopyemia in which an otitis media develops secondarily and contributes but little to the septic course. If the aural infection is severe, one may have to summon considerable courage to refrain from an operation which, owing to its prematurity, might have disastrous results.

The second group of cases is that in which there develops during the course of an acute suppurative otitis media an intercurrent infection which in itself is responsible for the appearance of sepsis. Because of this possibility, one never should be hasty in performing a mastoidectomy on a septic patient without careful attention to a complete physical examination. Most otolaryngologists have had the experience of having referred to them for immediate mastoidectomy an acutely ill and septic patient only to find developing during twenty-four hours of observation the signs of another infectious process. Most common among the intercurrent infections are pneumonoma and pichu. Erysipelas, rheumatic fever, endocarditis, coccic kidney or one of the acute exanthems may on occasion be found. Pneumonia, especially, may confuse the otologist when it appears during the course of a severe aural infection. The sudden rise in temperature and leukocyte count suggests the possibility of invasion of the sigmoid sinus; preeminently is this the case in children in whom physical signs in the chest may be very obscure. At



untimely mastoidectomy during the development of bronchopneumonia might well prove fatal

The third group of cases represents those of real otitic sepsis in which the infection in the middle ear and mastoid is responsible for the whole picture. These cases require truly individualized management, both medical and surgical. In such a patient one may be dealing with a toxemia or with a true septicopyemia, which may or may not be related to actual phlebitis or thrombosis of the sigmoid sinus. Although no hard and fast rules can be drawn, there are a few sound principles to follow which have proved helpful.

1 In the first place it must be remembered that, since cases of otitic sepsis are rarely surgical emergencies, sufficient time can be taken to determine definitely that the sepsis is of otitic origin. In many cases of otitic sepsis there may be reasonable doubt that the condition of the ear is entirely responsible for the patient's illness. Such doubts frequently exist with regard to patients in whom the otitis media seems to be resolving, as evidenced by discharge which has decreased in amount and has become more mucoid. Such a patient may have temporoparietal or trigeminal pain with nocturnal exacerbation, or there may be a point of tenderness over the temporal root of the zygoma, the mastoid tip or the post-sigmoid cells, or there may be radiographic evidence of osseous destruction in one of the peripheral parts of the temporal bone. These observations, which suggest a secondary aural focus in some portion of the mastoid during the resolution of the otitis media, are of material importance in the study of the patient. In the presence of an otitis media of four or five days' duration, especially if complicating an acute exanthem which in itself might well be responsible for the sepsis, one may hesitate in condemning the middle ear and mastoid as being responsible for the alarming manifestations. Doubts may be held also in those patients who present evidence of an acute exacerbation of a chronic otitis media. The lack of mastoid tenderness due to the presence of a thick eburnated mastoid cortex, inconclusive radiographic examinations and the lack of aural symptoms make it difficult to condemn the ear as the chief factor in the production of sepsis. In these difficult cases the time taken to make a diagnosis must be utilized well. The following procedures have been helpful on many occasions in making a decision regarding the importance of an infection of the ear in a septic patient.

(a) Bacteriologic studies of the aural discharge

(b) A record of the temperature, pulse and respiration every two hours

(c) Daily examinations of the blood at the same hour. These should include a red and white cell count, the hemoglobin determination and a differential count with Wright's stain. Increasing leukocytosis, progressive secondary anemia and an increase in the number of immature polymorphonuclear leukocytes are significant.

(d) Daily examinations of the urine, including study of the stained sediment from a centrifuged specimen. One must remember that streptococci may be found in the urine before their presence is determined by blood cultures.

(e) Daily blood cultures. These should be taken at the peak of a temperature rise or right after a chill. Here one must realize that one negative blood culture means little. Also it is important to remember that

pneumonia, severe tonsillitis and other acute infections may produce positive blood cultures.

(f) Examination of the patient twice a day with special reference to the heart (endocarditis), the lungs (pneumonia), the kidneys (coccic kidney), the skin (acute exanthem), the eyegrounds (evidence of increased intracranial pressure), the central nervous system (evidence of meningitis, brain abscess, petrositis or sinus thrombosis) and the cervical glands (suggestive evidence of jugular phlebitis).

(g) X-ray examinations of the chest repeated every forty-eight hours or even every twenty-four hours if there is a reasonable doubt that the ear is responsible for the sepsis and if the other conditions under consideration have been eliminated as possible etiologic factors. In the early stages of acute pneumonitis, both physical signs and radiographic evidence may be lacking but may make their appearance after twenty-four or forty-eight hours. The X-ray examinations may become positive some time before rales or signs of consolidation can be determined from the physical examination.

(h) Radiographic studies of the mastoids. In cases of sepsis it is important to know what type of structure is present within the temporal bone even though the infection is of only two or three days' duration. If the roentgenogram reveals a diploic structure, the ear is a more likely source of the sepsis than if the mastoid were sclerotic or of the large cell pneumatic type.

Thus a conscientious effort is made either to discover some occult extra-aural infection or to determine definitely that the sepsis is of otitic origin.

There are times when the otologist must stand alone against the pediatrician who hears no rales in the chest, the radiologist who finds the chest clear and the mastoid hazy, and the anxious parents who demand therapeutic action. However, he should insist on time for observation of the patient before performing the mastoidectomy if it is not perfectly clear to him that the ear is responsible. Conversely, the otologist may encounter opposition in demanding that an immediate operation be performed on a septic patient who has an otitis media of five or six days' duration and whose roentgenograms demonstrate a diploic mastoid with little or no evidence of pathologic alteration.

2 It must be remembered that the presence of organisms in the blood stream does not necessarily indicate an actual thrombus in the sigmoid sinus. The organisms may enter the general circulation from either the middle ear or the mastoid directly into the jugular bulb or the sigmoid sinus or by way of the countless small veins throughout the temporal bone. The possibility of a septic thrombus in the lateral sinus must be borne in mind, however, at the time of operation.

3 The surgical field should be completely covered.

(a) Careful excarceration of all accessible pneumatic bone is necessary. Special attention must be given to the postsigmoid cells and to the cells deep in the floor of the mastoid mesial to the facial nerve. On several occasions what appeared to be solid healthy bone has been found in the floor of the mastoid concealing a small paranasal abscess at a deeper level near the jugular bulb.

(b) The sigmoid sinus should be exposed widely in every septic case. This exposure should extend from the knee to a position deep in the floor. If an actual thrombus is not present this exposure eradicates numerous small emissary veins which may be transmitting organisms into the general circulation. Even though the sigmoid plate may appear to be intact,

smooth and ivory-like, there may be a concealed paraspinal abscess beneath it. Experience has shown that such a collection of pus beneath an intact sigmoid plate usually means a septic thrombus within the sinus, this is true even when the duration of the infection has been but five or six days.

(c) If there is reasonable doubt about the patency of the sigmoid sinus, it should be explored through an incision. Needle puncture is not adequate. In several instances I have found a septic thrombus in the sigmoid sinus when the sigmoid plate appeared to be normal and when the parietal wall of the sinus demonstrated only a slight gray discoloration to suggest a pathologic change.

(d) If the sinus appears to be normal at the time of operation, and if sepsis continues unabated for five or six days after operation, and especially if metastatic abscesses appear, one should operate again and ablate the sigmoid. The decision regarding interference with the jugular vein must depend on the pathologic changes found in the sigmoid sinus. Before such an attack is made on the sigmoid sinus other possible causes for the continued sepsis must again be excluded.

(e) The contralateral ear must be a closed issue before the secondary attack on the sigmoid sinus. Even if the objective examination and radiographic studies tend to suggest satisfactory progress in what has appeared to be a less severe suppurative process in the opposite ear, it is often advisable to perform a complete mastoidectomy on this second ear before attacking the sigmoid sinus on the original side. If the infectious process in the second mastoid is found to be more extensive than anticipated, further delay may be considered. If this second mastoid presents no gross evidence of an unusually severe infection, one should proceed immediately with the attack on the sigmoid sinus of the original side, as already mentioned.

4. Whether or not an actual invasion of the sigmoid sinus or jugular bulb is found, meticulous attention must be given to the postoperative medical management. Even though the surgical attack has been adequate in removing the active focus, most patients will continue to show evidence of sepsis for several days, during which all available supportive measures must be used.

The progress of the septic process can be followed if the following procedures are executed:

(a) Recording of the temperature, pulse and respiration regularly at intervals of two hours.

(b) Daily examination of the blood to note the presence of leukocytosis, anemia and immature polymorphonuclear leukocytes.

(c) Daily blood cultures.

(d) Daily examinations of the urine to note evidence of kidney damage.

The postoperative regimen should include:

(a) Forced fluids to 4 or 5 liters a day for adults. If the patient is unable to take adequate fluids by mouth he should be given a continuous intravenous injection of 5 per cent dextrose. If he is vomiting he must be given physiologic solution of sodium chloride in addition, the amount of saline solution given intravenously should approximate roughly the amount of fluid lost by emesis. This amount replaces the dissipated body chlorides to a certain extent.

(b) High caloric-high vitamin liquid diet.

(c) Reduced iron in doses of 0.5 Gm. three times a day.

(d) Repeated small transfusions of whole blood from different donors. Generally speaking, it is well to give

the adult patient about 200 cc of blood every second or third day during the period of continued sepsis.

(e) In cases of hemolytic streptococcal septicemia, sulfanilamide seems to be beneficial. This should be given by mouth when possible, or by vein as a 0.5 per cent solution in 5 per cent dextrose. If given at all it should be used in adequate dosage depending on the weight of the patient. The success of sulfanilamide therapy depends on its intelligent administration. Large doses should be given at first to bring the sulfanilamide content of the blood up to about 10 mg. per hundred cubic centimeters and should be followed by smaller doses to maintain the blood at that level. This of course demands frequent determinations of the sulfanilamide of the blood. Although results are not conclusive at this time, there is very definite evidence to suggest that this drug is of real value in treating the septic patient.

## SACRO-ILIAC TUBERCULOSIS

FRED THOMPSON, MD

Fellow of the New York Orthopaedic Dispensary and Hospital  
NEW YORK

In the records of the New York Orthopaedic Dispensary and Hospital there are the histories of twenty-three cases of sacro-iliac tuberculosis treated by operative fusion. Until 1919 the therapy employed was conservative, with rest in bed, heliotherapy and supportive measures. After 1920 arthrodesis of the sacro-iliac joint was always the method of choice unless the condition of the patient was such that operation would be immediately dangerous. This study is limited to those cases in which treatment was by operation.

Of the twenty-three patients, thirteen were female and ten were males. The average age at onset was twenty-three years, with four patients younger than 15. The right side only was affected in 52 per cent (twelve patients). Both sides were affected in two patients.

### MULTIPLE LESIONS

It is felt that sacro-iliac tuberculosis is one of the rare forms of tuberculosis and usually indicates a wide spread infection in the body. Seventy per cent of the patients (sixteen) showed evidence of tuberculosis in other parts of the body, and the infection in all but two of these was felt to be active at the time the sacro-iliac joint was fused. Forty-three per cent (ten patients) had pulmonary tuberculosis, and in nine the infection was active at the time of operation. Thirty-five per cent (eight patients) had lesions in the vertebral bodies as well as in the sacro-iliac joint and in three the infection was active. Several showed additional tuberculosis in the shoulder, wrist, elbow, ankle, hip or sternum. It is probable that more extensive examination of the urine and the tonsils would have placed the incidence of multiple foci at an even higher percentage.

### SYMPTOMS AND SIGNS

The average duration of symptoms before operation was two and one-half years, the longest fourteen years and the shortest three weeks. All of the patients had pain. Most commonly it was a dull ache in the buttock frequently described as "a pain in the hip." This was present to a greater extent on standing and walking than lying. Unless additional disease was present in neighboring joints, the pain was limited to the buttock.

or the posterior aspect of the hip region, or followed the distribution of the pain in sciatica. Pain low in the back was present, together with pain in the buttock, only when there was active tuberculosis at the lumbosacral joint (three patients). Pain radiating down the anterior aspect of the thigh from the hip to the knee was present in one case, together with pain in the buttock, as a result of active tuberculosis of the hip.

Only seven patients (30 per cent) had sciatica. It was always on the side of the affected joint. An interesting feature of this sciatica was that five of the seven patients had a large abscess in the buttock, causing tension or inflammation of the ligaments, fascia and gluteal muscles. In two cases aspiration of the abscess was performed and resulted in immediate disappearance of the sciatica.

Two patients had sciatic pain without an abscess in the buttock. One was relieved only after lumbosacral fusion for active tuberculosis, the sacro-iliac fusion having failed to relieve the sciatica. The other was completely relieved by sacro-iliac fusion within the first few postoperative days. Fusion of the joint could not have taken place in that short span of time. From these facts it would seem that disease of the sacro-iliac joint in itself does not tend to produce pain of the sciatic type.

Aside from pain, a few patients complained of listing of the trunk, lumping and atrophy of the thigh, but these signs were not prominent features in the series. Physical examination showed that the various so-called signs of sacro-iliac disease were absent as frequently as they were present. Compression of the wings of the ilia, in an attempt to move the sacro-iliac joints and straight-leg raising, produced pain in only half of the cases.

#### DIAGNOSIS

The preoperative diagnosis was not easy. Clinical signs and symptoms suggested disease of the joint but were in no way pathognomonic of tuberculosis. Roentgenograms and laboratory tests also offered no conclusive evidence. All these factors, however, indicated the need of exploration of the joint for possible tuberculosis. The white blood count was usually within normal limits, with a slight elevation of the lymphocyte count. The sedimentation rate was elevated. The Mantoux test was always positive. In the diagnosis of tuberculosis of this joint, as of other joints, the negative Mantoux test proved to be of the greatest value in ruling out disease.

Roentgenograms showed active destruction of the joint surfaces, usually near the antero-inferior margin of the joint. Soft tissue shadows offered but little guidance, owing to the depth of the tissue that had to be penetrated by the rays. Oblique views showing the opposing surfaces as parallel planes were sometimes necessary. They were also of great value in determining the degree of fusion that had resulted from the operation.

An attempt was made to prove the presence of tuberculosis at operation by examination of the pus or tissue section or by inoculation of guinea pigs. Tests with guinea pigs and examination of tissue were not always done together during the earlier years of the series. There were twenty-one cases of proved tuberculosis. The other two cases are included either because the patient had tuberculosis elsewhere in the body or because the results of tissue examination were strongly suggestive and the subsequent course, as shown by clinical and roentgenographic examination,

was typical of the disease. Three cases in which the joints were explored and fused for tuberculosis were not included in the series. The condition proved to be suppurative osteomyelitis on subsequent tissue examination, and the postoperative course was typical of that disease.

#### OPERATION

Arthrodesis of the joint was usually accomplished by a posterior approach with the patient under ethylene anesthesia. The incision was curved along the iliac crest and posterior superior spine toward the posterior inferior spine. The origin of the gluteus maximus was stripped up and the posterior ligaments reflected off the bone. A view of the joint was obtained by chiseling off the posterior superior spine and a portion of the posterior border of the body of the ilium. The joint was easily entered at the caudal end of the incision near the posterior inferior iliac spine. The joint cartilage was removed with the chisel and curet. All the diseased bone that could be removed easily was curetted out. No attempt was made to obtain all the cartilage or carious bone from the joint, since arthrodesis and healing were accomplished in all but one case even though surgical invasion of the joint was minimal. No attempt was made either to curet out the diseased area at the antero-inferior end of the joint, where the disease is nearly always seen by roentgenograms to be more extensive. The neighboring sides of the sacrum and the ilium were chipped up, forming small and large, free and attached bone chips. These were brought into contact. Additional bone, if needed, was taken from the external surface of the ilium. Closure was accomplished by replacing the origin of the gluteus maximus and approximating the skin.

After the operation the patient was left in bed with a spine brace in some instances and with no support at all in others. A plaster cast was unnecessary and was dispensed with as too cumbersome and uncomfortable.

When abscesses were observed at operation they were usually aspirated before the surgical procedure was begun. This was principally for convenience, so that the operative field would not be soiled. In a few instances the walls of the abscess were excised or treated with phenol. Generally they were ignored. Sinuses were avoided if they lay on the outskirts of the possible line of incision. If directly in the field of operation they were excised. Closure of the wound was made tight in an attempt to obtain primary union. Such union was secured in only one of four patients who had a sinus before operation but was obtained in ten of the nineteen patients (41 per cent) in whom no sinus had been present before operation.

A singular lack of motion was noted at the joint even when the so-called sacro-iliac signs had been present before operation. It is felt that the degree of motion that takes place is comparable to that associated with fibrous ankylosis of the joint. The difference between fibrous ankylosis and fusion of the joint is the factor that will decide the outcome of the destructive disease. Fibrous ankylosis is not always sufficient to allow the body to master the tuberculosis, bony ankylosis is.

#### SINUSES

The postoperative sinuses were treated as uninspiringly here as in other parts of the body. One simply waited for the disease in the bone to become quiescent, knowing that in time the sinus would close. Secondary infection was avoided as carefully as possible. Exuberant

ant granulation tissue was cut off with scissors or burnt away with silver nitrate

In twelve cases (52 per cent) draining sinuses developed after the operation. Most of them closed spontaneously within five months, usually when the disease began to show abatement by roentgenograms. Two sinuses drained for over five years but have since healed completely, and the patients are at active heavy work. It was not felt that the advent of a sinus postoperatively was an occurrence to be feared. The sinus usually closed when the disease in the bone subsided. Except in the patients who died, all the sinuses in this series eventually healed.

#### END RESULTS

The length of the follow-up period varied from six months to ten years. The average was 4.9 years.

Eighteen patients (78 per cent) are believed to be healed of their sacro-iliac tuberculosis, seventeen (74 per cent) have been actually cured and restored to active work and usefulness, several for as long as eight or ten years. One patient with tuberculosis of both hips is still under treatment, although it is three years since solid fusion of the sacro-iliac joint occurred and she is free from her sacro-iliac pain. The length of stay in bed after operation varied, depending on whether tuberculosis was active elsewhere in the body (group 1) or whether the focus was quiescent (group 2).

Sixteen patients in group 1 showing either active pulmonary lesions or elevation in temperature, pulse rate or sedimentation rate, were kept in bed until, clinically, the activity had abated. This required sometimes as long as three years. Every effort was made, however, to get the patient back to work as soon as possible, provided no other active focus was present. Although roentgenograms were a great aid in determining the degree of subsidence of the lesion in the bone, clinical observations on the pulse, temperature, weight and especially the sedimentation rate were a more correct gauge of the disease activity elsewhere in the body.

The average length of stay in bed after operation for the seven patients in group 2, who did not have an active demonstrable focus elsewhere in the body, was three months. When the temperature, pulse and sedimentation rate remained normal for several weeks the patients were allowed to get up. Patients in this group went home in four months.

Although "up in three months and home in four" seems at first glance somewhat radical for patients with tuberculosis, this is not quite the case with tuberculosis of the sacro-iliac joint. The mechanism of the joint is such that, were it not diseased, arthrodesis could be done and the patient be up and walking as soon as the sutures were removed. When active tuberculosis is present at operation absorption of previously diseased bone may continue for a few months. As the joint becomes immobile, the lesion is walled off and condensation of the bone occurs. The joint is solid long before condensation takes place, probably at six weeks. It is not necessary to insist on rest in bed until, as shown by roentgenograms, the diseased area is homogeneous bone. Walking and even the commencement of work did not in a single case in this series cause a recession in healing of the bone at the area of the disease. The only criteria, then, for allowing the patient to be up are the activity of other foci in the body. The fusion of one actively tuberculous joint serves as a lessening of the load the system must bear in its battle with the disease elsewhere. With the subsidence

of the joint disease after fusion, the clinical expressions of activity, such as elevation of temperature and sedimentation rate, rapidly disappear, even when known foci of tuberculosis are existent in other areas of the body. That the sacro-iliac fusion results in cure of the local tuberculosis is shown by the fact that, when once the joint is solid and the bone has attained a healthy appearance in roentgenograms, a recurrence has never been noted. This is true even when other foci flare up with lowered resistance of the body.

#### DEATHS

Five patients (21 per cent) died, all within one year after operation. Two died of pulmonary tuberculosis, one of miliary tuberculosis, one of cardiac decompensation due to rheumatic heart disease and one of tuberculous meningitis. None died as the immediate result of operation.

The question is naturally raised whether or not operative intervention was the contributing cause of these deaths. The patient who died of rheumatic heart disease had a decompensating heart and was referred here by her medical attendant for operation. At the time of her death, one year later, there was nothing to indicate that she had another focus of tuberculosis. Meningitis developed in another patient, suddenly, during the twelfth postoperative month, while he was convalescing at rest in bed. Death occurred eleven days later. The patient who died of miliary tuberculosis had been referred for surgical intervention from the tuberculosis ward of another hospital. She had recently recovered from pleurisy, her lung fields were pronounced normal and it was stated that her general condition did not contraindicate operation. Two weeks after operation roentgenograms of her chest showed miliary tuberculosis. She died six months later. The two patients who died of pulmonary tuberculosis showed active lesions in the chest before operation. Afterward roentgenograms and auscultation of the chest did not elicit signs of increased activity until the third postoperative month. Both patients died six months after operation in other hospitals.

This review suggests that these last three deaths may have been caused by operation, yet in nine of the ten cases with additional pulmonary tuberculosis eight showed no ill effects from the surgical procedure, although nine were considered active at the time of operation.

#### COMMENT

Petter,<sup>1</sup> in writing on the conservative treatment of unproved sacro-iliac tuberculosis, reported an average length of stay in bed of 891 days. In the present series of cases the average was 240 days. Petter found a mortality of five in thirty-one cases, compared with a mortality of five in twenty-three cases in the present series.

Smith-Petersen<sup>2</sup> reported thirteen cases, with four deaths. He found sciatica present in 77 per cent, as compared with 30 per cent in the present series.

#### CONCLUSIONS

1 Tuberculosis of the sacro-iliac joint and ligaments does not usually produce sciatic pain unless in association with its resulting tension, is an accompanying feature.

2 Fusion of the sacro-iliac joint results in cure of the local tuberculosis.

420 East 59th Street

<sup>1</sup> Petter, C. K. *Minnesota Med.* 17:465 (Aug.) 1924.

<sup>2</sup> Smith-Petersen, M. N. *Arthrodesis for Tuberculosis of the Sacro-iliac Joint*. J. A. M. A. 86:26 (Jan. 21) 1926.

# SULFANILAMIDE IN THE TREATMENT OF GONORRHEAL VULVOVAGINITIS

SAMUEL J. HOFFMAN, MD

MAURICE SCHNEIDER, MD

MAURICE L. BLATT, MD

AND

RUSSELL D. HERROLD, MD

CHICAGO

Gonorrheal vulvovaginitis in children is a common disease, at the Cook County Hospital alone we treat about 150 patients a year. Brunet and his co-workers<sup>1</sup> estimate that it occurs in from 1 to 5 per cent of the female children of the poor sections of the larger cities. We feel that this estimate is very conservative. In 1930 we were called to an institution to take care of several patients with vaginitis. After taking smears of all the girls, approximately 300, we found that 20 per cent were positive for gonococci. In Chicago there is a high percentage of active cases among the Negro population.

The sources of infection are numerous. In institutions the diaper appears to be the chief source of infection. Towels, linen, thermometers, bath tubs, attendants and nurses also may convey the organism from one child to another. About 80 per cent of our patients are traced directly to their homes, where bed linen, bath tubs, circular toilet seats and towels are chief sources of infection. About 10 per cent of the cases are due to rape.

The susceptibility of a child to gonorrhea is very great. Instead of the resistant squamous epithelium found in adults, there is present a pseudosquamous or delicate columnar epithelium. Vaginal secretions containing lactic acid are gonococcidal in the adult but are absent in the child. In addition the small size of the labia and the absence of pubic hairs decrease the protection against the entrance of gonococci.

Most young children present no symptoms other than the discharge on the diaper. In older children itching, burning and frequency of urination are noted. An occasional rise in temperature, even in the absence of complications, has been found.

Stein, Leventhal and Sered<sup>2</sup> found an involvement of the cervix in most cases of acute gonorrhea. We have found the inflammation a general one. The hymen, vulva, vagina, urethra and cervix are all involved in the acute stage. The labia are often swollen and hyperemic and granulations which bleed easily when touched with an applicator are often seen in the vagina. We have found the cervix involved in practically all acute infections since making routine gynecoscopic examinations. The cervix is swollen and hyperemic. Sometimes ectropion is present.

In the chronic stage the vagina is bluish red and sometimes succulent. The cervix may be diffusely involved, but in many patients only small punctate hemorrhagic areas are noted.

While some authors maintain that gonococci are found only in the acute stage and consider all vaginal discharges as of gonorrheal etiology, we have admitted and treated only those patients in whom gonococci were found.

Before the use of sulfanilamide, the treatment of gonorrheal vulvovaginitis consisted mainly of chemicals applied locally and the use of biologic agents. Since 1928 we have used various chemicals locally, such as silver nitrate, mercuriochrome, acriflavine, potassium permanganate, merthiolate, metaphen ammoniated mercury and lactic acid. Of all these local applications, we have obtained the least discouraging results with the silver nitrate in 0.5 to 1 per cent strength in 10 per cent gelatin. With this treatment we obtained negative smears in some instances in from six to eight weeks, which result was considered very satisfactory at that time. Most infections remained positive for more than five months. In a series of 124 patients that we treated at the Cook County Hospital the average length of stay in the institution was 4.6 months. Recurrences were very common. Forty of the patients returned because of recurrent infection in from two weeks to eight months after discharge from the hospital. Undoubtedly many more had relapses but did not return.

A temporary wave of enthusiasm followed the introduction of biologic products in the treatment of gonorrheal vulvovaginitis. In 1930 we<sup>3</sup> reported a large series of cases treated with immune horse serum, gonotoxin broth filtrates injected intracutaneously and subcutaneously, ectoantigen intracutaneously, whole gonococci intracutaneously, and local application with gonotoxin. In 1934 we<sup>4</sup> reported on lysed gonococci in the treatment of gonorrheal cervicovaginitis. In general the results were not particularly encouraging with any of these methods of treatment.

In 1933 Lewis<sup>5</sup> reported on the use of estrogenic substance, which changes the immature vaginal epithelium to the mature thick epidermis-like structure of the adult, and containing lactic acid secretion which supposedly is gonococcidal. We treated eighteen patients with theelin, giving 2,000 international units three times weekly. The amounts used in individual patients varied from 64,000 to 184,000 units. In general the results were somewhat better than with the silver nitrate treatment, but still not very encouraging, since 40 per cent of the patients had recurrences.

Working independently, and at about the same time, Reuter<sup>6</sup>, Dees and Colston,<sup>7</sup> and Herrold<sup>8</sup> reported favorable preliminary observations on the use of sulfanilamide in adult male patients with gonorrhea. Since overenthusiasm might cause the pendulum to swing too far in favor of such a drug, we have tried to guard ourselves with a cautious skepticism in the application of sulfanilamide to gonorrheal vulvovaginitis. The history and pharmacology of sulfanilamide have been discussed amply in many previous publications. One of us (Herrold) has found that sulfanilamide in concentrations stronger than 1:10,000 is bactericidal in vitro, although such determinations must be made in periods of hours to demonstrate gonococcidal action instead of the standard twenty minute contact as used with other antiseptics. The exact mechanism of its action is not known. However, the primary factor is that of bacteriostasis with eventual bactericidal effects.

<sup>3</sup> Herrold R. D., Hoffman S. J. and Blatt M. L. Biologic Therapy of Gonorrheal Vulvovaginitis. *Ven. Dis. Inform.* 11: 397 (Sept. 20) 1930.

<sup>4</sup> Blatt M. L., Herrold R. D., Hoffman S. J. and Schneider Maurice. Lysed Gonococci in the Treatment of Gonococcus Cervicovaginitis. *J. Pediat.* 5: 511 (Oct.) 1934.

<sup>5</sup> Lewis R. M. Study of Effects of Theelin on Gonorrheal Vaginitis in Children. *Am. J. Obst. & Gynec.* 26: 593 (Oct.) 1933.

<sup>6</sup> Reuter F. A. The Use of Sulfanilamide in the Treatment of Gonorrhea. *Am. Ann. Dis. Treat. Columbia G.* 117 (May) 1937.

<sup>7</sup> Dees J. E. and Colston J. A. C. Sulfanilamide in Gonococcal Infections. *J. A. M. A.* 108: 1855 (May 29) 1937.

<sup>8</sup> Herrold R. D. Treatment of Gonorrhea and Other Infections in the Urinary Tract with Sulfanilamide. *Urol. & Cutan. Rev.* 11: 463 (July) 1937.

Read before the Chicago Pediatric Society, Dec. 21, 1937.  
From the Departments of Pediatrics and Urology, University of Illinois College of Medicine and the Department of Pediatrics, Cook County Hospital.

<sup>1</sup> Brunet W. M., Tolle D. M., Scudder S. A. and Medcalf A. R. Cervicovaginitis of Gonococcal Origin in Children. *Hosp. Social Service Magazine*, Supp. 1, March 1933.

<sup>2</sup> Stein I. F., Leventhal M. L. and Sered Harry. Cervicovaginitis. *Am. J. Dis. Child.* 37: 1203 (June) 1929.



Carey<sup>9</sup> of Boston treated two cases of gonorrheal vulvovaginitis in children with sulfanilamide and obtained prompt favorable results in both cases.

Our series includes a group of twenty-five children varying in age from 3 months to 10 years. Three of this group had chronic infections at the time of institution of treatment, one subacute and the remainder acute infections. No local treatment was used and sulfanilamide was administered orally in fruit juice to all the patients. The supply of sulfanilamide for this study was furnished by the Winthrop Chemical Company. A standard dosage was used throughout.

TABLE 1—Dosage of Sulfanilamide

Days	Dosage per Day
1st and 2d day	$\frac{3}{4}$ grain per pound
3d to 7th day inclusive	$\frac{3}{8}$ of original dose or $\frac{9}{16}$ grain per pound
8th to 21st day inclusive	$\frac{1}{2}$ of original dose or $\frac{3}{8}$ grain per pound

During the first two days the daily dosage was three-fourths grain (0.05 Gm.) per pound of body weight in four equally divided doses at intervals of six hours. During the next five days the dosage was reduced to three-fourths of this amount, or nine-sixteenths grain (0.04 Gm.) per pound daily. During the second and third weeks the dosage was reduced to three-eighths grain (0.024 Gm.) per pound daily or one-half the initial dosage. At the end of a three weeks course of treatment a rest period of one week was given regardless of the results of smear examinations. All patients whose smears were positive at the end of this rest period were given a second course exactly like the first. A rest period was also given at the end of the second course of treatment, and for the majority of patients who were still infected at the end of the second rest period a third course of treatment was prescribed. A few patients were given a fourth course of treatment after the third rest period. An outline of the dosage is given in table 1.

Results in this group of twenty-five patients are summarized in table 2. It may be noted that only seven patients were apparently cured during the first course of treatment, or under a period of twenty-one days. By apparent cure we mean a clinical disappearance of all signs of infection from the urethra, vagina, cervix and rectum, as well as negative smears from these areas. None of this group of seven were cured under a period of sixteen days, and the average was 17.3 days. Four of the group cured during the first course of treatment had acute infections, two chronic and one subacute. During the second course of treatment, nine additional patients were cured between the thirty-fifth and forty-ninth day of treatment, with an average of 42.9 days. Seven of the nine patients not cured were given a third course of treatment, and one of this group was cured during the third course or in sixty-three days. Four of the six remaining patients not yet cured were given another course of treatment after the usual rest period, and only one of this group of four was cured by such additional treatment. Analysis, therefore, reveals that approximately two thirds of the patients were cured by one or two courses of treatment, after which there was a very marked drop in the percentage of benefit derived by a third and fourth course of treatment. It would seem then that patients who do not respond to two standard courses of treatment have

gonococcic infections that are relatively resistant to therapy with sulfanilamide.

It is well known that many patients with gonococcal vaginitis, who are thought to be cured by the standard methods of examination, will have recurrence after a variable period. All patients in this group were kept in the hospital for two weeks after negative smears were obtained and all those listed as cured had follow up examinations from one to three months after discharge from the hospital.<sup>10</sup> The examinations revealed that they were symptomatically normal, and smears were negative for gonococci. One patient who was examined after discharge from the hospital was found to have had extracellular diplococci but no discharge in the vagina and she is not included in the group of eighteen of this series who are listed as cured.

Negative smears will be found in many patients during the treatment or for a period of from three to seven days after the discontinuance of sulfanilamide. On the other hand, it was exceptional for patients to have a recurrence if they were clinically and microscopically normal for a period of two weeks after discontinuance of the drug. Smears were taken in a routine manner through the vaginoscope and sent to two laboratories for examination.

All reports on the use of sulfanilamide in any substantial series of patients have included a varying sort of side reactions from mild to so severe that discontinuance of the drug seemed advisable. However, in our group of children the incidence of side reactions was strikingly less than in any comparable series of adults that have been reported. Gastrointestinal symptoms, which so commonly occur in adult patients, were entirely absent in this group of children. Only one patient had a typical "drug fever" reaction, which occurred on the tenth day and was associated with urticaria and swelling of the face. Two other patients had a slight fever of less than 100 F. One patient had a rather severe epistaxis, and three others mild epistaxis. A definite anemia occurred in only one patient. Clinically, the patient had no subjective symptoms, but unfortunately this was one of the patients whom we

TABLE 2—Patients with Gonococcal Vaginitis Treated with Sulfanilamide

Course	Number of Patients	Number of Patients Cured	Average Number of Days to Cure
First	23	7	17.3
Second	18	9	42.9
Third	7	1	63.0
Fourth	4	1	60.0

were unable to observe after discharge from the hospital, so that we are unable to state the ultimate condition of the anemia. It is noteworthy that the majority of this group of patients had a definite anemia on entrance to the hospital, and they were given as a routine liver and iron therapy for this condition. Such treatment was continued during the administration of sulfanilamide, and generally there was a definite improvement in the blood on the combined treatment similar to the response to liver and iron therapy without sulfanilamide. The patient who had sulfanilamide fever and urticaria also had albuminuria, which cleared up promptly following the discontinuance of the drug. Cyanosis was not noted in any of this group on the dosage outlined.

9. Carey, B. W. The Use of Para Aminobenzenesulfonamide and Its Derivatives in the Treatment of Infections Due to the Streptococcus Hemolyticus, the Meningococcus and the Gonococcus. *J. Pediat.* 11: 202 (Aug.) 1937.

10. Since this paper was submitted all cases have been rechecked from four to seven months after discharge from the hospital and have been found to be negative again, except in the one case.

## COMMENT

While we appreciate that a larger percentage of patients might have been cured during the first course of treatment by a greater dosage of sulfanilamide, we wished to keep the amount of the drug administered within the limits of safety for ambulatory patients. In general, a large percentage of the patients with gonococcal vaginitis must be treated without hospitalization. Hageman<sup>11</sup> reported in a series of sixty-eight children, a much greater incidence of complications than we observed in our series. Three of his series had gonococcal vaginitis and the others miscellaneous infections. He mentions that cyanosis associated with methemoglobinemia was encountered in approximately 50 per cent of the cases treated. He also states that one in every six patients treated had fever between the seventh and tenth day after the institution of sulfanilamide therapy and that one half of the patients with a febrile complication had an accompanying morbilliform rash. He states in regard to dosage that, in general, 1 gram daily to 20 pounds (9 Kg) of body weight was given in divided dosage at intervals of six hours. This is the same dose that we used for the first two days of treatment but, while Hageman does not state the duration of this dosage, it is assumed that it was continued during the duration of treatment, which could no doubt account for the high incidence of reactions as compared to our series with a schedule of decreasing doses.

It is well known that patients with gonococcal vaginitis may be clinically free from symptoms for months and then have an exacerbation with positive smears. We have noticed this during the past ten years following other forms of treatment but, as a rule, there would be a substantial number with recurrence during a period of from one to three months following discontinuance of treatment. In this series after the use of sulfanilamide, there was but one patient of those considered cured when they left the hospital who later showed a positive smear but no clinical symptoms. All patients listed as cured had follow-up examinations after leaving the hospital, but most of them had two such examinations. Therefore, we feel that with an apparent cure two weeks after discontinuance of sulfanilamide there is less likelihood of a later recurrence than after the former methods of treatment, including endocrine therapy.

It is not known why certain patients, on a like dosage, do not respond favorably to the administration of sulfanilamide. It seems noteworthy that in our series there were two girls from the same family, one of whom was cured in twenty-one days, while her sister failed to be cured after three courses of sulfanilamide. It is likely that these two children had the same type of gonococci, so that in this instance at least, primary serologic types were not an explanation of the difference in the clinical reaction to the drug.

One of us (Herrold) has noted approximately the same efficacy of sulfanilamide in adult male patients that we obtained in children. In about one third of adult males results were highly satisfactory in that the patients were cured in a period of from ten to thirty days. In approximately another third of the patients response was fairly satisfactory and cure was obtained after from thirty to sixty days. In the remaining third the effect of the drug was unsatisfactory either because of the inability of patients to

continue the use of sulfanilamide as the result of the more serious side reactions, or the patients were refractory to the action of the drug.

## SUMMARY

We treated gonorrheal vulvovaginitis by various methods prior to the use of sulfanilamide.

In a series of twenty-five patients who were given sulfanilamide, seven were cured in an average of 17.3 days and nine in an average of 42.9 days. Only two of the nine remaining patients were cured by additional administration of sulfanilamide.

A standard dose of sulfanilamide was used in all, the results suggest a comparative futility of the continuation of more than two standard courses of treatment.

The children have tolerated sulfanilamide extremely well as compared to adults, in whom reports have indicated a high incidence of reactions.

185 North Wabash Avenue

## CARBON DISULFIDE POISONING

WITH A REPORT OF SIX CASES

SAMUEL T. GORDY, M.D.

AND

MAX TRUMPER, Ph.D.

PHILADELPHIA

With the rapid growth of the rayon industry a health hazard has reappeared—carbon disulfide poisoning. The United States is one of the largest rayon manufacturing countries in the world, having produced 290 million pounds in 1936. Of the twenty-five rayon factories with 50,000 employees now operating in this country, nineteen are viscose plants using carbon disulfide. For every 3 pounds of rayon produced, 1 pound of carbon disulfide must be used. In 1936 more than 33 million pounds of carbon disulfide was consumed by one large viscose corporation.

Foreign journals contain reports of many hundred cases of poisoning from carbon disulfide in viscose and rubber plants, yet in our own country this form of poisoning has received little attention in medical journals. For some reason the subject has been shrouded in mystery and to our knowledge only five reports have been made by American authors: Peterson<sup>1</sup> in 1892, Heath<sup>2</sup> in 1902, Jump and Cruick<sup>3</sup> in 1904, Francine<sup>4</sup> in 1905 and Hamilton<sup>5</sup> in 1925. We ourselves have examined six cases and have knowledge of many more. With the application of the new occupational disease compensation laws in many of the states, more will be heard of this insidious poison.

The toxicology of carbon disulfide concerns itself principally with the incidence of disability to workers using this chemical solvent in some processes pertaining to rubber, in making explosives, as an insecticide, in extraction of fat from hides, bones, wool and vegetables, in the sulfur clearing of crude paraffin and especially in the manufacture of artificial silk (viscose). Historically the incidence of carbon disulfide poisoning roughly parallels the industrial uses of this compound in various countries. In 1843 Parkes's process

1. Peterson, F. Three Cases of Acute Mania from Inhaling Carbon Disulfide. *Boston M. & S. J.* 127: 325 (Oct. 30) 1892.

2. Heath, F. C. Amblyopia from Carbon Disulfide Poisoning. *Arch. Ophth.* 11: 4 (Jan.) 1902.

3. Jump, H. D. and Cruick, J. M. Chronic Poisoning from Carbon Disulfide. *Univ. Pennsylvania M. Bull.* 17: 193 (July-Aug.) 1904.

4. Francine, A. P. Acute Carbon Disulfide Poisoning. *Am. Med. J.* 51 (May 27) 1906.

5. Hamilton, Alice. Industrial Poisons in the United States. New York: Macmillan Company, 1925; 366.

11. Hageman, P. O. Clinical Experience in the Use of Sulfanilamide at the New Haven Hospital. *J. Pediat.* 11: 195 (Aug.) 1937.

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During the first two days the daily dosage was three-fourths grain (0.05 Gm.) per pound of body weight in four equally divided doses at intervals of six hours. During the next five days the dosage was reduced to three-fourths of this amount or nine-sixteenths grain (0.04 Gm.) per pound daily. During the second and third weeks the dosage was reduced to three-eighths grain (0.024 Gm.) per pound daily or one-half the initial dosage. At the end of a three weeks course of treatment a rest period of one week was given regardless of the results of smear examinations. All patients whose smears were positive at the end of this rest period were given a second course exactly like the first. A rest period was also given at the end of the second course of treatment, and for the majority of patients who were still infected at the end of the second rest period a third course of treatment was prescribed. A few patients were given a fourth course of treatment after the third rest period. An outline of the dosage is given in table 1.

Results in this group of twenty-five patients are summarized in table 2. It may be noted that only seven patients were apparently cured during the first course of treatment, or under a period of twenty-one days. By apparent cure we mean a clinical disappearance of all signs of infection from the urethra, vagina, cervix and rectum, as well as negative smears from these areas. None of this group of seven were cured under a period of sixteen days, and the average was 17.3 days. Four of the group cured during the first course of treatment had acute infections, two chronic and one subacute. During the second course of treatment nine additional patients were cured between the thirty-fifth and forty-ninth day of treatment, with an average of 42.9 days. Seven of the nine patients not cured were given a third course of treatment, and one of this group was cured during the third course or in sixty-three days. Four of the six remaining patients not yet cured were given another course of treatment after the usual rest period, and only one of this group of four was cured by such additional treatment. Analysis, therefore, reveals that approximately two thirds of the patients were cured by one or two courses of treatment, after which there was a very marked drop in the percentage of benefit derived by a third and fourth course of treatment. It would seem then that patients who do not respond to two standard courses of treatment have

gonococcal infections that are relatively resistant to therapy with sulfanilamide.

It is well known that many patients with gonococcal vaginitis, who are thought to be cured by the standard methods of examination, will have recurrence after a variable period. All patients in this group were kept in the hospital for two weeks after negative smears were obtained and all those listed as cured had follow up examinations from one to three months after discharge from the hospital.<sup>10</sup> The examinations revealed that they were symptomatically normal, and smears were negative for gonococci. One patient who was examined after discharge from the hospital was found to have had extracellular diplococci but no discharge in the vagina and she is not included in the group of eighteen of this series who are listed as cured.

Negative smears will be found in many patients during the treatment or for a period of from three to seven days after the discontinuance of sulfanilamide. On the other hand, it was exceptional for patients to have a recurrence if they were clinically and microscopically normal for a period of two weeks after discontinuance of the drug. Smears were taken in a routine manner through the vaginoscope and sent to two laboratories for examination.

All reports on the use of sulfanilamide in any substantial series of patients have included a varying sort of side reactions from mild to so severe that discontinuance of the drug seemed advisable. However, in our group of children the incidence of side reactions was strikingly less than in any comparable series of adults that have been reported. Gastrointestinal symptoms, which so commonly occur in adult patients, were entirely absent in this group of children. Only one patient had a typical "drug fever" reaction, which occurred on the tenth day and was associated with urticaria and swelling of the face. Two other patients had a slight fever of less than 100 F. One patient had a rather severe epistaxis, and three others mild epistaxis. A definite anemia occurred in only one patient. Clinically, the patient had no subjective symptoms, but unfortunately this was one of the patients whom we

TABLE 2—Patients with Gonococcal Vaginitis Treated with Sulfanilamide

Course	Number of Patients	Number of Patients Cured	Average Number of Days to Cure
First	25	7	17.3
Second	18	9	42.9
Third	7	1	63.0
Fourth	4	1	100.0

were unable to observe after discharge from the hospital, so that we are unable to state the ultimate condition of the anemia. It is noteworthy that the majority of this group of patients had a definite anemia on entrance to the hospital, and they were given as a routine liver and iron therapy for this condition. Such treatment was continued during the administration of sulfanilamide, and generally there was a definite improvement in the blood on the combined treatment similar to the response to liver and iron therapy without sulfanilamide. The patient who had sulfanilamide fever and urticaria also had albuminuria, which cleared up promptly following the discontinuance of the drug. Cyanosis was not noted in any of this group on the dosage outlined.

<sup>9</sup> Carey, B. W. The Use of Para-Aminobenzenesulfonamide and Its Derivatives in the Treatment of Infections Due to the Streptococcus Hemolyticus, the Meningococcus and the Gonococcus. *J. Pediat.* 11: 292 (Nov.) 1937.

<sup>10</sup> Since this paper was submitted all cases have been re-examined from four to six months after discharge from the hospital. All but two were found to be symptomatically and microscopically cured.

## COMMENT

While we appreciate that a larger percentage of patients might have been cured during the first course of treatment by a greater dosage of sulfanilamide, we wished to keep the amount of the drug administered within the limits of safety for ambulatory patients. In general, a large percentage of the patients with gonococcal vaginitis must be treated without hospitalization. Hageman<sup>11</sup> reported, in a series of sixty-eight children, a much greater incidence of complications than we observed in our series. Three of his series had gonococcal vaginitis, and the others miscellaneous infections. He mentions that cyanosis associated with methemoglobinemia was encountered in approximately 50 per cent of the cases treated. He also states that one in every six patients treated had fever between the seventh and tenth day after the institution of sulfanilamide therapy and that one half of the patients with a febrile complication had an accompanying morbilliform rash. He states in regard to dosage that, in general, 1 gram daily to 20 pounds (9 Kg.) of body weight was given in divided dosage at intervals of six hours. This is the same dose that we used for the first two days of treatment but, while Hageman does not state the duration of this dosage, it is assumed that it was continued during the duration of treatment, which could no doubt account for the high incidence of reactions as compared to our series with a schedule of decreasing doses.

It is well known that patients with gonococcal vaginitis may be clinically free from symptoms for months and then have an exacerbation with positive smears. We have noticed this during the past ten years following other forms of treatment, but, as a rule there would be a substantial number with recurrence during a period of from one to three months following discontinuance of treatment. In this series after the use of sulfanilamide, there was but one patient of those considered cured when they left the hospital who later showed a positive smear but no clinical symptoms. All patients listed as cured had follow-up examinations after leaving the hospital, but most of them had two such examinations. Therefore, we feel that with an apparent cure two weeks after discontinuance of sulfanilamide there is less likelihood of a later recurrence than after the former methods of treatment, including endocrine therapy.

It is not known why certain patients, on a like dosage, do not respond favorably to the administration of sulfanilamide. It seems noteworthy that in our series there were two girls from the same family, one of whom was cured in twenty-one days, while her sister failed to be cured after three courses of sulfanilamide. It is likely that these two children had the same type of gonococci, so that in this instance at least, primary serologic types were not an explanation of the difference in the clinical reaction to the drug.

One of us (Herrold) has noted approximately the same efficacy of sulfanilamide in adult male patients that we obtained in children. In about one third of adult males, results were highly satisfactory in that the patients were cured in a period of from ten to thirty days. In approximately another third of the patients response was fairly satisfactory and cure was obtained after from thirty to sixty days. In the remaining third the effect of the drug was unsatisfactory either because of the inability of patients to

continue the use of sulfanilamide as the result of the more serious side reactions, or the patients were refractory to the action of the drug.

## SUMMARY

We treated gonorrheal vulvovaginitis by various methods prior to the use of sulfanilamide.

In a series of twenty-five patients who were given sulfanilamide, seven were cured in an average of 17.3 days and nine in an average of 42.9 days. Only two of the nine remaining patients were cured by additional administration of sulfanilamide.

A standard dose of sulfanilamide was used in all, the results suggest a comparative futility of the continuation of more than two standard courses of treatment.

The children have tolerated sulfanilamide extremely well as compared to adults, in whom reports have indicated a high incidence of reactions.

185 North Wabash Avenue

## CARBON DISULFIDE POISONING

WITH A REPORT OF SIX CASES

SAMUEL T. GORDY, M.D.

AND

MAX TRUMPER, Ph.D.

PHILADELPHIA

With the rapid growth of the rayon industry a health hazard has reappeared—carbon disulfide poisoning. The United States is one of the largest rayon manufacturing countries in the world, having produced 290 million pounds in 1936. Of the twenty-five rayon factories with 50,000 employees now operating in this country, nineteen are viscose plants using carbon disulfide. For every 3 pounds of rayon produced, 1 pound of carbon disulfide must be used. In 1936 more than 33 million pounds of carbon disulfide was consumed by one large viscose corporation.

Foreign journals contain reports of many hundred cases of poisoning from carbon disulfide in viscose and rubber plants, yet in our own country this form of poisoning has received little attention in medical journals. For some reason the subject has been shrouded in mystery and to our knowledge only five reports have been made by American authors: Peterson<sup>1</sup> in 1892, Heath<sup>2</sup> in 1902, Jump and Cruice<sup>3</sup> in 1904, Francine<sup>4</sup> in 1905 and Hamilton<sup>5</sup> in 1925. We ourselves have examined six cases and have knowledge of many more. With the application of the new occupational disease compensation laws in many of the states, more will be heard of this insidious poison.

The toxicology of carbon disulfide concerns itself principally with the incidence of disability to workers using this chemical solvent in some processes pertaining to rubber, in making explosives, as an insecticide, in extraction of fat from hides, bones, wool and vegetables in the sulfur clearing of crude paraffin and especially in the manufacture of artificial silk (viscose). Historically the incidence of carbon disulfide poisoning roughly parallels the industrial uses of this compound in various countries. In 1843 Parkes's process

<sup>1</sup> Peterson T. Three Cases of Acute Mania from Inhaling Carbon Disulfide. *Bo. ton M. & S. J.* 12: 25 (Oct. 30) 1892.

<sup>2</sup> Heath F. C. Amblyopia from Carbon Disulfide Poisoning. *Arch. Ophth.* 11: 4 (Jan.) 1902.

<sup>3</sup> Jump H. D. and Cruice J. M. Chronic Poisoning from Carbon Disulfide. *Univ. Pennsylvania M. Bull.* 17: 193 (July-Aug.) 1904.

<sup>4</sup> Francine A. P. Acute Carbon Disulfide Poisoning. *Am. Med. J.* 31: 190 (Nov. 27) 1905.

<sup>5</sup> Hamilton Alice. Industrial Poisons in the United States. New York: Macmillan Company 1925. p. 366.

<sup>11</sup> Hageman P. O. Clinical Experience in the Use of Sulfanilamide at the New Haven Hospital. *J. Pediat.* 11: 195 (Aug.) 1937.

for the cold vulcanization of rubber was introduced into France. Carbon disulfide was recognized by the French as an industrial poison as early as 1851, and workers were warned of its danger if the processes were carried on without proper ventilation. Duchenne de Boulogne<sup>6</sup> is credited with first having reported polyneuritis from this cause. Delpsch<sup>7</sup> made the first significant and systematic study, reporting twenty-four cases, and supplemented these with animal experiments, which confirmed carbon disulfide as the causative toxic agent. He established carbon disulfide intoxication as a distinct clinical concept and established the basis for its differentiation from such contemporary neurotoxic syndromes as those arising from alcohol and lead, he gave it the name of carbon disulfide neurosis (nevrose sulphocarbonée). Delpsch remarked that the severity of the resulting disorder bore no necessary relationship to the apparent acuteness of the onset of symptoms. He attempted to classify the chaos of symptomatology that the observed cases presented. Out of the melange of acute symptoms he divided his "acute" cases into two periods, the first a period of excitation and the second a period of collapse. The first period he described as one marked by an "exaltation of the intellectual faculties" and noted especially that sexual stimulation occurred with some degree of frequency. The second period, by contrast, consisted in general of a reversal of the picture with dulness, torpor and confusion dominating the picture. As the industrial use of carbon disulfide grew, further reports were added to the literature from England and Germany. Laudenhimer's<sup>8</sup> monograph in 1899 containing more than fifty cases reemphasized the psychiatric aspects of this disorder in which Delpsch had pioneered.

Until the introduction of artificial silk, the rubber industry was the principal origin of carbon disulfide poisoning. Thereafter from Germany, France, Holland and Italy have come the majority of reports. For example, in 1928 carbon disulfide poisoning ranked second in frequency in industrial disorders in Germany (Sommerfeld<sup>9</sup>). With the exceptions mentioned it is remarkable that there have been relatively few case reports of this disorder in America. However, it must also be remembered that industrial diseases in America have not had and do not have the emphasis or study which obtains in many European nations, where they are reportable and compensable.

The mode of entrance of carbon disulfide into the body is principally by inhalation of its vapor. Less frequently it is taken in by contact of the skin with the liquid, producing a sensation of burning followed by anesthesia. Prolonged contact produces second and third degree burns with blistering and a local neuritis.<sup>10</sup> Lecousse and Derville<sup>11</sup> report a case in which a woman, aged 30, accidentally drank half a glassful of a mixture of carbon disulfide and carbon tetrachloride. The immediate symptoms were burning in the pharynx and esophagus and painful throbbing in the temples, marked redness of the face and slight dimness of vision.

Within three hours vomiting and diarrhea began and then there were complete inertia, a vacuous expression to the face and deep narcosis for two hours. As she came out of her coma she had marked stiffness of the jaws and anarthria, with persistence of vomiting and diarrhea. Several hours later she recovered her speech. She then described her sensations. She felt that the end of the world had come, she had painful and terrifying dreams, she had visions of the various members of her family rolling down to a steep precipice. She did not have a period of excitement or of drunkenness in the development of the symptoms of intoxication.

Poisoning may occur in two forms, the acute and the chronic. In the acute form the worker inhales the vapor in considerable concentration such as may occur when a container of the chemical is broken accidentally and the worker cannot escape in time or when workers are required to clean out vats in which it has been stored and the vats are not fully aired beforehand.

The chronic form, in which the worker is exposed to its vapors in small concentration usually for months, sometimes for years, is by far the more frequent form.

The chemical pathology of carbon disulfide poisoning is well understood. The pathologic changes depend on the solubility of lipoids in this agent. Since the biologic structure and physiologic function of neural tissue are so very dependent on the lipid setup in its cytoplasm, nerve fibers and myelin sheaths, it can be readily appreciated that lipid solvents which are introduced within the body will give evidence of their action primarily with neurotoxic manifestations. Carbon disulfide poisoning therefore belongs to the pharmacotoxicology of narcotic poisons such as ether, chloroform and alcohol. It is a specific cerebral and neural poison and in its acute phases produces narcosis and paralysis after preliminary excitation.

In experimental animals (Poincaré,<sup>12</sup> Lehmann,<sup>13</sup> Koester<sup>14</sup>) poisoning may produce irreparable changes in the central and peripheral nervous systems, with changes in the ganglion cells, myelin sheaths and axon cylinders at first increased irritability, then diminished excitability and finally irreversible degenerative changes. The toxin cannot be said to be selective in its action on any particular centers or areas, but in general the gray matter suffers most heavily. In the brain diffuse softening with breaks in the pathways occurs, and also in the cord with dissolution of the myelin. Degenerated cells are found in all portions of the brain, hence the protean character of the symptoms. In experimental animals there are in addition fatty degeneration of the heart muscle and dilatation and rupture of cerebral vessels. Wiley, Huepner and von Oettingen<sup>15</sup> reported extensive degeneration of the testicles in their animals.

The effects on such animals may be divided into three groups, narcotic, irritable and paralytic. The narcotic phenomena are torpor, dulness, semitorpor and muscular weakness. The phenomena of irritability are incoördinate movements, muscular twitching, vomiting, muscular cramps and disturbance of vaso-motor centers. The paralytic symptoms in both animal and man are disappearance of tendon reflexes, muscular

6 de Boulogne Duchenne cited by Laudenhimer.  
7 Delpsch M. A. Recherches sur l'intoxication spéciale que détermine le sulfure de carbone. Ann. d'hyg. pub. et méd. lég. 19 65 1863. Mémoire sur les accidents que développe chez les ouvriers en caoutchouc l'inhalation du sulfure de carbone en vapeur. Bull. de l'Acad. de méd. 21 350 1856.

8 Laudenhimer R. Die Schwefelkohlenstoffvergiftung der Gurkenarbeiter. Leipzig 1899.

9 Sommerfeld T. Die Entschädigung von Berufskrankheiten in chemischen Betrieben. Med. Welt 3 1303 (Sept. 7) 1929.

10 Huepner W. C. Etiologic Studies on the Formation of Skin Blisters in Vapour Workers. J. Indust. Hyg. & Toxicol. 18 432 (S pt.) 1936.

11 Lecou e H. and Derville P. In intoxication aiguë par ingestion accidentelle d'un mélange à base de sulfure de carbone. J. de méd. de Bordeaux 111 71 (Jan. 30) 1934.

12 Poincaré. Recherches expérimentales sur les effets des vapeurs de sulfure de carbone. Arch. de physiol. norm. et path. 1 20 1877.

13 Lehmann K. B. Experimentelle Studien über den Einfluss des Schwefelkohlenstoffvergiftung. Deutsch. Arch. f. Hyg. 20 6 1894.

14 Koester G. Ein klin. oder Beitrag zur Lehre von der chronischen Schwefelkohlenstoffvergiftung. Deutsch. Arch. f. Hyg. 26 1 1894.

15 Wiley F. H., Huepner W. C. and von Oettingen M. F. Toxic Effects of Low Concentrations of Carbon Disulfide. J. Hyg. & Toxicol. 18 733 (Dec.) 1936.



palsies, respiratory and cardiac paralysis and death. There are no especial hemolytic phenomena.

While acute death has occurred in some of the cases of carbon disulfide poisoning it is relatively infrequent. There is a dearth of autopsy material in man and it is necessary to depend to a large extent on the studies in animals for the demonstration of the pathologic changes that result. Recently, however, Abe<sup>16</sup> reported a case of carbon disulfide poisoning of thirteen years' duration in a young man who was employed in mending rubber shoes. After headache, malaise, anorexia, depression, irritability and neurasthenoid symptoms of long standing a psychosis of the Korsakoff type developed, with loss of memory, retrograde amnesia with confabulation, speech disturbance, weakness of the legs, urinary disturbance, Romberg and Babinski signs, muscular cramps, marked tremor, edema of the legs, high fever and albuminuria (a diagnosis of uremia had been made). Death occurred after ten months of severe symptoms, and the autopsy elucidated the entire clinical picture. The microscopic examination showed regressive changes in the nervous system in addition to fatty degeneration of all the other organs. There was no evidence of any acute inflammatory process in the vascular areas of the nervous system (no polymorphonuclear leukocytes anywhere nor any evidence of chronic inflammatory vascular change). The fatty degeneration of the nervous system was mostly central and not strikingly peripheral. The degenerative changes in the cerebral cortex were of such wide distribution as to be independent of the vascular supply and independent of any presumed chronic vascular damage. The damage was especially marked in the gray matter of the cerebrum, cerebellum and brain stem, while the white matter by contrast was almost free from change. There was marked degeneration of the pyramidal tracts in the pons, extending into the cord. The degenerative changes of the neurons and myelin sheaths showed evidence of a mixture of recent and long standing toxic damage of both moderate and severe degree. These changes were attributed to direct toxic damage and also were nutritional in origin.

In man the symptoms of acute poisoning are malaise, headache, vomiting, vasomotor disturbances, muscular cramps, motor unrest, excitement, unconsciousness and motor palsies. Floret<sup>17</sup> reported three cases of so-called acute poisoning. In one case the person inhaled the concentrated vapor of carbon disulfide for a few minutes. Unconsciousness resulted almost immediately. For a year following this she was pale, lacked appetite, vomited and had tremor of the hands. Later epileptiform seizures, muscular twitching and gastrointestinal disturbances occurred. Gastric analysis showed diminished hydrochloric acid. After longer exposure in the same room as this patient, and after inhaling more concentrated carbon disulfide vapor, two other persons reacted similarly. In addition to loss of consciousness there were episodes of laughter and weeping, disordered heart action and muscular twitchings. After several weeks one showed improvement from gastrointestinal symptoms but the other had epileptiform seizures under excitement.

In chronic poisoning three syndromes may be differentiated which frequently come together, (1) somatic disorders, (2) organic disturbances of the central nervous system, (3) psychic disorders.

Symptoms of general somatic character are weakness, loss of appetite, diarrhea or obstinate constipation, loss of weight, simple quantitative anemia (with no change in the blood picture), bradycardia, tachycardia or arrhythmia, weakness of the limbs, pallor, cachexia, an ashen gray appearance of the conjunctiva, a primary increase in libido and later diminution and loss of sexual function (Constansou<sup>18</sup> and Heim,<sup>18</sup> Quarell<sup>19</sup>). A syndrome resembling Addison's disease has been reported by Devoto.<sup>20</sup> He describes the case of a young physician whose research work in the fat extraction of chick embryos exposed him for six hours to an atmosphere heavily laden with the vapors of carbon disulfide. At the end of the day severe headache, dizziness, malaise and loss of appetite developed and he could not return to the laboratory the next day. Marked weakness developed, he was confined to bed and the third day jaundice developed. Within two weeks there was enlargement of the liver, secondary anemia and dark brown spots in the mouth and increasing weakness. Within a month typical symptoms of Addison's disease developed with arterial hypotension, pigmentation of the skin and progressive asthenia. Death occurred two and half years later. In view of the prior health of the young physician the author ascribed the Addisonian picture to damage done the adrenals by the toxic action of the inhaled carbon disulfide, with a simultaneous effect on the cells proper, the nerve ganglions and the capillaries, with an immediate disruption of function and subsequent sclerosis and atrophy of the organ. There was no autopsy, but the authorities regarded him as industrially incapacitated by carbon disulfide poisoning and after his death his family was compensated accordingly.

Weise<sup>21</sup> analyzed the gastrointestinal symptoms in 100 cases, thirty-two being cases of chronic carbon disulfide poisoning from the rubber industry and sixty-eight of combined chronic hydrogen sulfide and carbon disulfide poisoning among workmen in the manufacture of artificial silk (viscose method). The men had worked an average of twenty-five months in these industries. In most of these cases a disturbance of the function of the stomach was noticed by the workmen within eight to nineteen months after beginning work in these industries. In 14 per cent of these cases, ulcers of the stomach or of the duodenum were diagnosed and in several cases operations were performed. In an additional 11 per cent, ulcers were suspected.

The morbidity statistics from several large artificial silk factories indicate an incidence of stomach trouble of 17.7 per cent from exposure to carbon disulfide and hydrogen sulfide, while all other textile factories show but 2.7 per cent. In the case of ulcers of the stomach or of the duodenum, the figures were 2.6 and 3 per cent.

#### ORGANIC NEUROLOGIC MANIFESTATIONS

According to Ranelletti, - 80 per cent of his cases showed neurologic symptoms. Those encountered are

18. Constansou, H. G. and Heim, M. I. "Frequence relative des symptomes nerveux dans le sulfocarbonisme chronique." Internat. Cong. Indust. Hyg. Brusel, 1910, cited in Legge, "Carbon Disulfide Poisoning," Nelson's Loose Leaf Medicine, New York, p. 491, also in Hamilton, Alice, Industrial Toxicology, New York, Harper & Brothers, 1934, p. 241.

19. Quarell, G. "Intossicazione da solfuro di carbonio nelle lavorazioni della seta artificiale." Med. di Lavoro, 2: 247 (June, 30) 1930.

20. Devoto, I. "Schwefelkohlenstoff und Nebenniere (Addison'sche Krankheit)." Arch. f. Gewerbepath. u. Gewerbehyg. 5: 429 (Dec.) 1934.

21. Weise, Werner. "Gastro-intestinal Disturbances Caused by Chronic Inhalation of Carbon Disulfide and Hydrogen Sulfide." Arch. f. Gewerbepath. u. Gewerbehyg. 4: 219 (Jan.) 1935, also in J. Indust. Hyg. & Toxicol. 15: 32, 1933.

22. Ranelletti, A. "Industrial Poisoning by Carbon Disulfide in Italy." Arch. f. Gewerbepath. u. Gewerbehyg. 1: 164 (Dec. 17) 1912, also in J. Indust. Hyg. & Toxicol. 1: 5, 1933.

16. Abe, Mitsuo. "Beitrag zur pathologischen Anatomie der chronischen Schwefelkohlenstoffvergiftung." Jap. J. Med. Sci. Tr. 11: 111, Int. Med. Pediat. Psychiat. 2: 1 (Sept.) 1933.

17. Floret, cited in Kraus, 22.

headache, dizziness, severe occipital or frontal headache, pain in the limbs, increase or diminution in superficial and deep reflexes, incoordination tremor (a coarse intention or a static tremor), palsies or weakness of various cranial and spinal nerves, especially the facial, involvement of the optic tracts, muscular weakness, especially the flexors of the hands and feet, hyperesthesias, paresthesias, muscular twitchings or a polyneuritic syndrome (Duchenne de Boulogne,<sup>23</sup> Harris,<sup>24</sup> Bonhoeffer<sup>24</sup>), disturbances of the intestine and bladder and parkinsonian syndrome (Ando-Gionotti,<sup>25</sup> Negro,<sup>26</sup> Quarelli<sup>27</sup>). There may be alternation of irritability with paresis of the muscles. The combination of headache, visual disturbance and gastrointestinal disorders may simulate brain tumor.<sup>28</sup>

Of special note are eye symptoms, which appear early—fatigability at near vision, diminution of visual acuity, distortion of images, colored rings about objects, fogging, scotomas, retrobulbar neuritis and pallor of the temporal disks (Monbrun, Richet and Faquet,<sup>29</sup> Monbrun and Faquet,<sup>30</sup> Nectoux and Gallois,<sup>31</sup> Krause<sup>32</sup>).

#### PSYCHIC DISTURBANCES

In fully half of the reported cases there was mental disturbance of much severity, varying in degree and persistence such as to be outstanding. Delpuch drew attention to the similarity in behavior in some of his cases to that of acute alcoholic intoxication. He used the term "ivresse sulphocarbonée" to describe the tipsiness, overtalkativeness and unmotivated happiness or joy which he observed or which were described by the fellow workers of some of his patients. Laudenheimer observed that "the psychic changes may appear with slightly preceptible but with increasing intensity over a period of several days," showing a definite prodromal period. "One is confronted with a lack of inhibition (ausgelassenheit)." There may be excitement and increased psychomotor activity, flight of ideas, outbreaks of irritability and unmotivated rage. On the other hand there may be somnolence, semistupor or simply forgetfulness and retardation and intellectual impairment.<sup>33</sup> Periods of amnesia, sleeplessness, sleep reversal, horrible dreams and anxiety states may precede the onset of definitive psychosis. The psychoses may be characterized by a definite manic depressive picture with either manic or depressive symptoms or an agitated depression. Visual and auditory hallucinations and delusions of persecution may color the picture, delirium may occur or a schizophrenic syndrome with catatonic excitement. A simple dementing process may develop with quantitative mental loss, without other striking features. The preponderance of patients exhibited varying degrees of mental impairment with torpor, hebetude, inability to concentrate, memory

defects and irritability even when psychosis did not become full blown. One of Peterson's<sup>1</sup> patients who had the delusion that his tongue and lungs were gone nevertheless comprehended the falsity of his belief. Clinically there is marked resemblance between carbon disulfide poisoning of low grade chronic type and asthenia or neuralgia. In cases in which the symptomatology is not advanced or dramatic in its manifestations its general features may be mistaken for neurasthenia and its local manifestations for various neuralgias. This is especially true if the neurologic signs are larval, inconstant or evanescent or do not correspond to any definite syndrome. Similarly psychic symptoms may be mild, neurasthenoid or hysteriform.

In 1888 Charcot,<sup>33</sup> in one of his *Leçons du Mardi*, presented a case of alleged hemiplegia in a rubber worker due to carbon disulfide. He demonstrated that neither the paralytic signs nor the sensory changes fitted in with the usual picture of hemiplegia or hemianesthesia. He made the comment that there was in Delpuch's and in later reported cases an insufficiency of real clinical evidence supported by neuropathologic changes to warrant these cases being called hemiplegia. Both Charcot and Marie<sup>34</sup> regarded the incongruity and heterogeneity of signs and symptoms as proof of their hysterical origin, especially in view of the coexistence of sexual disturbance. The power and persuasiveness of Charcot's psychiatric philosophy were sufficient for the time, to cast doubt on the value of the neurologic and psychiatric observations of Delpuch, an able hygienist and industrial toxicologist of a previous generation. While Charcot admitted that there were disorders of the central nervous system definitely ascribable to the action of carbon disulfide, he felt that a differentiation should be made between the organic neurologic damage, measurable by clinical analysis on the one hand, and the symptomatology, much of it of a psychiatric nature, imponderable and nonspecific on the other. The signs and symptoms of any neuropsychiatric disorder which did not in his opinion conform to a well defined clinicopathologic disorder were ipso facto hysterical in nature. With inexorable logic he applied the same criteria to other toxic agents, namely, alcohol and lead. Just as there could be traumatic epilepsy, there could be traumatic hysteria (neurosis). By the same token he held that there was a lead hysteria, an alcoholic hysteria, a carbon disulfide hysteria. In other words, hysteria was the common denominator of the bizarre, the incoherent and the disturbing elements which prevented the exacting clinician from fitting the patient into the contemporary neuropathologic scheme of things. Since hysteria according to Charcot, was such a common disorder he felt justified in denying the specificity of the action of carbon disulfide and declared that this substance, in common with alcohol and lead and trauma, was merely an *agent provocateur* of hysteria. Charcot's masterful clinical judgment, however, could not be dulled by too close an adherence to his own logic, for he expressed the opinion that hypnotism could not be expected to do much for this type of hysteria. This is practically a tacit admission that the usual form of hysteria was different from this type.

From a modern point of view one can look on the neurasthenoid and hysteriform symptoms as the primary response of the organism to a disruption in the internal milieu and a disorganization of the relative chemical stability of the neurons of the higher cerebral centers.

23 Harris, Wilfred. Toxic Polyneuritis. *Brain* 45: 415 (Dec.) 1922.  
24 Bonhoeffer, K. Neurologischen und psychischen Folgeerscheinungen der Schwefelkohlenstoffvergiftung. *Monatsschr. f. Psychiat. u. Neurol.* 75: 195 (April) 1930.

25 Ando-Gionotti, G. B. Le paralinisme sulfocarbonée. *profe siencia Pre e med.* 40: 1249 (Aug. 20) 1932.

26 Negro, F. A. Les syndromes parkinsonien par intoxication sulfocarbonée. *Rev. neurol.* 2: 518 (Nov.) 1930.

27 Quarelli, G. Del tremore parkinsonismo dell' intossicazione cronica da solfuro di carbonio. *Med. u. lavoro* 21: 58 (Feb. 28) 1930.  
28 Le syndrome striopallidale dans l'intoxication chronique par sulfure de carbone (syndrome de Quarelli). *Paris med.* 1: 333 (June 12) 1937.

29 Baader, E. W. An Hirntumor. *Erinnernde Vergessung* u. Erscheinungen durch Schwefelkohlenstoff. *Med. Klin.* 26: 1740 (Dec.) 1932.

30 Monbrun, A. Richet, C. and Faquet, A. La neurite optique rétrobulbaire par sulfure de carbone. *Arch. d'ophth.* 49: 697 (Nov.) 1932.

31 Monbrun, A. and Faquet, A. Neurite optique rétrobulbaire par sulfure de carbone. *J. de med. et chir. prat.* 193: 657 (Ser. 23) 1932.

32 Nectoux, R. and Gallois, R. A. Quatre cas de neurite rétrobulbaire par le sulfure de carbone. *Bull. Soc. d'ophth. de Paris* p. 79. Dec. 1931.

33 Krause, F. Beitrag zur Frage der Schwefelkohlenstoffvergiftung. *Ztschr. f. d. g. Neurol. u. Psychiat.* 134: 139 (June) 1931.

33 Charcot, J. M. *Leçons du Mardi* 1: 18. Paris, 1888.  
34 Marie, Pierre. *Sulfure de carbone* 1: 1. Paris, 1931.

and association pathways and the vegetative nervous system with its adrenal connections

These early psychic symptoms are either irritative in character or a resultant of the suppression of the usual inhibitory functions of these higher centers, or a mixture of the two. If the toxic action is further continued, one has evidence of psychotic behavior. The result is not only a quantitative matter, in the sense of the amount of toxin absorbed, but qualitative in the sense that any or many cerebral areas may be simultaneously or haphazardly affected. Major psychotic phenomena may be delayed for years, as in Abe's case in which a Korsakoff syndrome developed after thirteen years' exposure.

Three groups of symptoms, namely, the somatic, the neurologic and the psychic, have been noted. Generally characteristic of this diagnostically is the occurrence of symptoms of two and usually all three varieties. Differential diagnosis is to be made from chronic alcoholism, lead poisoning, neurosyphilis, brain tumor, polyneuritis of other origin and postencephalitic parkinsonism, so protean are the manifestations of carbon disulfide poisoning.

A word concerning prognosis. It depends on the age, general bodily health and promptness with which the poisoning is detected and the removal of the worker from the deleterious atmosphere. In many instances the somatic and neurologic disorders disappear after the workers are removed from exposure to the toxic agent. Brief exposure may, however, have long continued or permanent sequelae. Tolerance is not established or, if so, only rarely. On the contrary, there is an increased susceptibility to poisoning on further exposure. Women are more susceptible and show a greater incidence of psychic disorder. The psychosis may be permanent (Peterson, Laudenhimer, Koester, Abe).

#### REPORT OF CASES

We ourselves have seen the following cases

**CASE 1—History**—A C a woman aged 27, married ten years, the mother of three children aged 9, 7 and 3½ years respectively, had had generally good health and no illness during her pregnancies. She had been working in the rayon industry for years as a reeler of artificial silk. The onset of the present illness was of the acute type. One day she handled spools of incompletely dried viscose. Symptoms began with violent headache, faintness and then loss of consciousness. Shortly before losing consciousness she remembers being very restless, weeping, screaming and laughing. After recovering consciousness she felt as though she had been beaten all over. A little later she spit blood and had bloody bowel movements. She was semiconscious and stuporous the greater part of that day. Since that time she has had repeated spells. They last from fifteen to twenty minutes and consist of headache and numbness in various parts of the body and her hands and feet feel as though they were asleep. She has auditory hallucinations, her eyes feel jump and twitchy, black spots dance before her eyes, she has cold sweats and is contrary. Her behavior apparently had been so erratic and bizarre that commitment to the state hospital was seriously considered. As a result of her mental abnormality she has been separated from her husband.

**Physical Examination**—The patient is somewhat thin, has a reddish blond complexion and her skin has a peculiar cyanotic hue, the color of heliotrope. During the examination this alternated with pallor, showing vasomotor instability. The gastrointestinal and cardiovascular systems were essentially normal. The blood pressure was 110 systolic, 65 diastolic.

**Neurologic Examination**—The pupils were regular, somewhat dilated and reacted to light and in accommodation. Extraocular movements were normal, the conjunctivae were of a grayish pallor and there was corneal anesthesia. The cranial

nerves were normal, tendon reflexes were exaggerated, there was no clonus and the Babinski sign was not present, there was a suggestion of Troemmer's sign on the right, there were no definite sensory objective signs with the exception of the fact that she seemed to be indifferent to pin pricks throughout the body.

The Wassermann reaction of the blood was negative. The blood count revealed hemoglobin 70 per cent, red blood cells 5,050,000, white blood cells 10,600. The differential smear was normal. Examination of the urine showed a trace of albumin and from 400 to 500 pus cells per low power field, otherwise the urine was essentially normal.

**Summary**—A woman worked for six years in a viscose plant and was subjected to acute exposure to vapors of carbon disulfide, marked symptoms of intoxication developed accompanied by and followed especially by severe psychotic episodes. Neurosomatic manifestations are a simple secondary anemia, vasomotor instability, corneal anesthesia and paresthesias. She has psychotic episodes characterized by hallucinatory phenomena.

**CASE 2—History**—D G a woman, aged 23, married, had been a viscose worker for eleven months. Dec 23, 1933, while at work, she noticed that she felt dazed and her mind seemed to wander. She retired to the rest room for a short time and when she came back to work there was a return of symptoms. She began to laugh and cry and feel sleepy. She retired to the rest room again and reported to the nurse asking for a tablet of acetylsalicylic acid. When she returned to work her symptoms were worse and she wept continuously, she was taken home and became comatose and remained so for a week. Since that time and after immediate recovery from the acute phase she has had episodes, especially at the time of the menses, of patchy areas of dysesthesia over various parts of the body, headaches, a jumpy feeling in the head, a feeling as though her eyes would pop out of her head, blurred vision, and a sensation that the 'brain seems dull and flat,' and she is very irritable and states that she goes out of her senses for a period of about half an hour. The length of the attacks varies from half an hour to three hours.

**Examination**—Physical examination revealed none of the face, but the results of the general somatic examination were essentially negative. Neurologically there were exaggerated tendon reflexes, there was no ankle clonus and the Babinski sign was not present, a generalized hypesthesia, poor vision of the right eye, pallor of the right optic disk and gross contraction of visual fields (retrobulbar neuritis) were noted.

The Wassermann reaction of the blood was negative. The blood count revealed hemoglobin 74 per cent, red blood cells 4,110,000, white blood cells 8,100. A differential smear was normal. Examination of the urine showed a trace of albumin and from 75 to 100 pus cells per low power field, otherwise the urine was normal.

**Summary**—In a woman worker in a viscose factory for eleven months, acute pseudo emotional disturbance and severe coma developed followed by episodes of headache, dysesthesia, visual disturbance, irritability, psychotic behavior and retrobulbar neuritis.

**CASE 3—History**—I W a married woman aged 33, the mother of two children aged 3 and 10 years, had worked on and off in a viscose plant for about two years. On the same day as in the other cases headache and then inability to move any of her muscles developed. She was aware of her surroundings but was unable to talk. Objects about her appeared to become of tremendous size and then to become extremely small. She had to be taken home from the plant. She was unable to see until the next morning when she recovered her vision. Objects appeared to be distorted as though she were 'looking through a magnifying glass.' She was unable to urinate for four days, her arms and legs went to sleep and she was unable to move them. She described herself as feeling as though she had been beaten severely all over her head. It was difficult for her to breathe and she felt as though she had asthma. When she felt respiratory difficulty some one gave her artificial respiration. Since then she has had episodes of numbness in her hands and feet, she feels as though her eyes vibrate and she has episodes of crying and sleeplessness. Her behavior

is peculiar and she often goes to sleep half dressed, is depressed and morose and is very susceptible to odors. Because of her behavior she was referred to and attended the clinic of the state hospital every week for three months. Physical examination and neurologic examination were essentially negative.

The Wassermann reaction of the blood was negative. The blood count revealed hemoglobin 80 per cent, red blood cells 4,650,000, white blood cells 9,200. The differential count was normal. Examination of the urine showed a trace of albumin, otherwise it was negative.

**Summary**—A woman viscose worker suffering from acute intoxication manifested headache, lilliputian and brobdingnagian visual hallucinations, amblyopia, distorted vision (wavy vision), paresthesia of the limbs with muscular weakness, paralysis of the bladder and respiratory embarrassment as immediate symptoms.

Following recovery from the acute phase, the residual symptoms are paresthesias of the limbs and eyes, emotional outbreaks, episodes of sleeplessness, depression, forgetfulness and larval psychotic behavior. Neurologic signs are absent.

**CASE 4—History**—C. A., a man, aged 42, worked in the rayon industry three years, much of his work consisting in the installation and repair of the ventilating system in a new rayon plant. Within the first six months he began to have symptoms, with two periods of greater severity. He began to have blurring of vision, pain and burning in his eyes, headache, "nervousness," a sensation of seasickness and occasional vomiting. He was unable to sleep or rest and later he had reversal of sleep and marked fatigability. He began to have episodes of depression, noticed by his wife as well as himself, and was extremely irritable toward his children. A feeling of stiffness and pain developed in his limbs, especially in the tendons of his legs, the sensation being described as feeling as though he had run a long race. His vision gradually diminished so that he had only light perception in his right eye. Visual images in the left eye appeared as though distorted by heat waves. About six months after he began this work he began to notice a progressive diminution in libido and episodes of general depression, beginning about the same time and continuing after he left the industry. His depression is at times relieved when he is actively occupied.

**Examination**—The right pupil is larger than the left, slightly irregular and reacts sluggishly to direct light but well consensually. The left pupil is fairly regular and reacts well to light. There is loss of vision over the nasal field of the right eye. The field of the left eye was not affected. The right eyeground showed a retinchoroiditis with marked blurring and loss of outlines of the nerve head. The left eyeground showed pallor of the temporal disk. There was corneal anesthesia, the ocular and palpebral conjunctivae of both eyes being thickened. Other cranial nerves were grossly normal. Muscular power was good throughout. There was hyperreflexia, no Troemner or Babinski signs, no ataxia, and no disturbance in any of the modalities of sensation, with the exception of generalized hyperesthesia. The cremasteric reflexes were considerably diminished. The skin showed dermatographia. The thoracic and abdominal viscera were normal. The blood pressure was 145 systolic, 85 diastolic.

**Summary**—A man, engaged principally in installation and repair of the ventilating system in a viscose plant, showed symptoms of chronic intoxication with blurring of vision (wavy vision), headache, nausea, vomiting, sleep reversal, fatigability, depression, neuritic pains, considerable loss of vision, retinobulbar neuritis, choroidoretinal pathologic changes and diminution of libido.

**CASE 5—History**—E. B., a woman, aged 32, was employed off and on for seven years in the rayon industry, the last time for a period of three years. She stopped work Feb. 21, 1934. For three months in 1933 she was in the reeling room for the last three months in 1933 in the coning room and for the first two months in 1934 in the reeling room.

After two months in the reeling room she began to have "nervous spells" which consisted of irritability and causeless weeping. She had sore throats and colds and she has not been free of bronchial trouble since, she has a constant sensation of rawness in the throat. She began to feel that she was

going crazy. She had frequent experiences in which she had lapses of memory, she would find herself some place and did not know how she had gotten there, for example, she would have a knife in her hand and would not remember how it had occurred. Frequently at work she would have surges of causeless rage and she felt as though she would like to smash the reels. She had a strange sensation in her feet, she felt as though there was nothing underfoot when she walked, and severe dizziness and intense headaches developed. She had double vision and also "things appeared to have a wavy appearance." She was constantly apprehensive of going crazy and had frequent momentary flashes of unconsciousness. She had severe pain in the chest and felt as though her chest was in a vise and was being crushed. These episodes were so severe that she had to stop work for three or four months. She has a residual of this sensation at present under the right shoulder blade. She feels as though there is a hole in her chest and that she is blowing her breath through it. She is dyspneic. She had sensations in which she felt as though objects were moving down her arms and legs. She has had persistent chronic fatigue during which time she felt "dopy," and it she did not lie down she would fall off her feet. Even now her spells of fatigue are so severe that she becomes indifferent to everything about her. She has had one cold after another. During the summer of 1934 she had severe dysmenorrhea every month with very black discharge (this condition was relieved by diathermy treatments).

During this time she had severe anorexia but her appetite has improved in recent months. When she feels better she is able to do her housework but frequently is so fatigued for no reason at all that she cannot do it.

During one of the periods in which she was in the converting department she had to write the simplest things down because her memory was so defective. For two years while she was working and after she stopped working she has been unable to sleep well. Since that time she has lost all sexual desire.

**Examination**—The patient is rather tall, fairly well built and is fairly alert and answers questions intelligently. She weighs 170 pounds (77 Kg.).

The pupils react to light and in accommodation, extraocular movements are normal. There is bilateral corneal anesthesia. The pharyngeal reflex is absent. The pharynx is pale with hyperemic spots (chronic pharyngitis). The cranial nerves are otherwise normal. There is no ataxia and no evidence of cerebellar dysfunction except for a slight Romberg sign. The biceps, triceps, knee and ankle jerks are present and active. There is no disturbance in any of the modalities of sensation.

The Wassermann reaction of the blood is negative. The blood pressure is 98 systolic, 70 diastolic.

**Summary**—In a woman who worked with viscose, subjected to chronic exposure to vapors of carbon disulfide, the following symptoms developed: crying spells, causeless rage, double vision, vertigo, intense headache and oppression of the chest, paresthesias, corneal anesthesia, chronic fatigue, loss of weight, defective memory, loss of libido, hypotension, irritability, chronic irritation of the mucous membranes of the nose and throat and mental phenomena consisting of petit mal episodes.

**CASE 6—History**—E. S., a man, aged 49, foreman in a viscose factory who worked principally in the reeling room first became ill in April 1933. Headache, vertigo, rapid loss of weight and paresthesia in his hands and feet developed. With this there was also insomnia, causeless weeping and night terrors, he had achiness in his bones for months. For some time he felt that his mind was not working properly. Both his wife and his son have noticed that his actions have not been normal and have told him about his crying and screaming while sleeping and that his body shakes all over. His memory is unreliable. He describes episodes resembling fugues in which he finds himself at some place and can't remember how he got there. He is now unable to drive a car because he is uncertain of himself. He complains of dyspnea and a sense of oppression in the chest. He also has episodes of blindness lasting for a few minutes and also double vision. He is unable to retain a position because of his memory faults. He has a marked diminution of libido.

**Examination**—The patient is fairly well built and gives evidence of having lost weight, his present weight being 156 pounds (71 Kg). The pupils are regular and react to light and in accommodation, the eyegrounds show slight pallor of the temporal disks and slight atherosclerosis. The cranial nerves are otherwise normal except for mild tremor of the tongue. There is no ataxia or other evidence of cerebellar dysfunction. The biceps, triceps, knee and ankle jerks are present and equal, there are no pathologic reflexes and no disturbances in any of the modalities of sensation.

The blood pressure is 150 systolic, 100 diastolic.

**Mental Status**—The patient tends to be morose, apathetic and somewhat indifferent and his thought processes are retarded. He is oriented in all spheres but his memory is definitely dulled. He finds it difficult to place various occurrences in the past in any sort of proper sequence. He formerly had the reputation of being a first class worker and had the ability of handling other employees, now he has a marked lack of initiative and a sort of childlike dependence on others.

**Summary**—A man who worked with viscose and was subjected to chronic exposure to carbon disulfide fumes acquired headaches, vertigo, loss of weight, paresthesias, insomnia, causeless weeping, night terrors, fugues, petit mal episodes, depression, impairment of memory, loss of initiative and impairment of libido. The neurologic examination was negative.

#### COMMENT

These six cases may be divided into three so-called acute and three chronic forms of this disorder. In all six there is a relative paucity of neurologic signs. Two patients showed corneal anesthesia. The visual disturbances are noteworthy, two patients complained of what might be termed "wavy vision," two had retrobulbar neuritis, and in one acute case lilliputian and broodingnagian hallucinations (or illusions) were present. As far as we are aware, "wavy vision" and this type of hallucination has hitherto not been reported in carbon disulfide poisoning.

Especially noteworthy is the periodic or cyclic character of psychotic episodes accompanied by a variety of paresthetic or hallucinatory phenomena, which were sequelae in four of the cases. Chronic fatigue and asthenia is present in two of the cases, amnesic features in two and progressive mental deterioration with memory defects in one of the cases. In four there is diminution or loss of libido. All of the patients are invalids.

Two and one-half years ago we urged the federal authorities of the need for a survey of the toxic hazards in the viscose industry. More recently, Dr Adele Cohn<sup>35</sup> in her Bryn Mawr survey found thirty cases of psychosis which developed in one viscose plant. At present a federal survey of the rayon industry is being made which will be of inestimable help to all who are interested in the prevention, early diagnosis and treatment of carbon disulfide poisoning.

The mode of action of carbon disulfide is clear, it is hypotrophic and hence neurotoxic. This is to be inferred a priori from its physicochemical properties, it is demonstrated by the pathologic material in experimental animals and in man. Until a few years ago most authorities relied on the quantitative experimental work of Lehmann on animals. His rats did not tolerate an atmosphere containing 1 mg of carbon disulfide per liter of air for an eight or nine hour exposure. The inspection service of the British factory department<sup>36</sup>

in 1934 still uses these figures<sup>37</sup> and states that "an atmosphere of 322 to 386 parts per million produces slight symptoms after several hours, and 483 to 802 parts per million is the maximum concentration that can be inhaled for one hour without serious disturbance." As a footnote the carbon disulfide memorandum adds that "these are for acute effects, exposure of several hours a day to concentrations lower than those mentioned leads in a short time to chronic poisoning." No definite figures are given for chronic exposure.

Wiley, Hueper and von Oettingen in their 1936 experiments on rats and mice have demonstrated that the permissible upper limit is 0.1 mg per liter (32 parts per million) for exposures longer than Lehmann's.

Zhitkova<sup>38</sup> in 1933 reports that a total of 5 mg has induced poisoning in man and further states the upper limit of safety as 0.01 mg per liter of air to be the official standard of the Soviet government.

Voltmer and Nuck<sup>39</sup> in 1933 reported a survey in which simultaneous studies were made of atmospheric working conditions and physical examinations of workers in a rubber factory in Germany where carbon disulfide was used. Sampling of the air repeatedly showed figures below 1 mg per liter of carbon disulfide concentration, at times as low as 0.2 or 0.1 mg per liter. Of fifty-seven women workers employed for from five months to twenty years, only six were free of symptoms and signs of illness. All complained of fatigue and 70 per cent suffered from visual and gastrointestinal disturbances. From 20 to 40 per cent complained of headache, nausea, vomiting, memory defects and sensory disturbances including dysesthesias. This clinicotoxicologic study is one of the few that indicate chronic toxicity levels.

Two factors of importance complicate the translation of results of experimentation on animals to man, especially in chronic intoxication<sup>40</sup>. The first is the imponderable one, namely, that there can be no psychopathologic changes in animals with the exception of apes or conditioned animals. The vast panorama of neuropsychiatric symptomatology in carbon disulfide poisoning can be only partially illuminated by animal intoxication. The other factor that seems to have been neglected is the relationship of the weight of the nervous system, particularly the cerebrum, to the total body weight of animals in contrast to that of man. Human neural tissue with its vascular supply is capable of absorbing and fixing a relatively greater quantity of circulating neurotoxin than the nervous system of animals.

Our knowledge is sufficient for the establishment of minimal health standards of carbon disulfide in industry. Until such standards become established, in our opinion, the concentration of carbon disulfide in the atmosphere must be kept well below 0.1 mg per liter of air, preferably around 10 parts per million (0.03 mg per liter). In addition, frequent examination of workers must be maintained to detect the early symptoms of chronic poisoning.

856 North Fifth Street—921 Medical Arts Building

37 One mg of carbon disulfide per liter of air equals 322 parts per million at 25°C (Haggard and Henderson Toxic Gases).

38 Zhitkova, A. S. Some Methods for the Detection and Estimation of Poisonous Gases and Vapors in the Air translated by Joseph B. Bicklen, Hartford, Conn. p. 62.

39 Voltmer and Nuck. Studien über die Frage der Gesundheitsgefährdungen von Arbeitern bei der Vulkanisation von Gummiartikeln. Reichsanzeiger 32, 1933 cited by Wiley Hueper and von Oettingen.

40 Gordy, S. T. Neurotoxic Aspects of Intoxications by Lipid Solvent in Trumper's Memoranda of Toxicology ed. 3 Philadelphia 1937.

35 Cohn, Adele. Supplement to Report of Governor's Commission of Pennsylvania on Occupational Disease Compensation, 1937.

36 Memorandum on Precautions Against Dangers of Poisoning Fire and Explosion in Connection with the Use of Carbon Disulfide in Artificial Silk, India Rubber and Other Works. London His Majesty's Stationery Office (form 836) March 1934.



## UNDULANT FEVER

ITS TREATMENT WITH SULFANILAMIDE

ROBERT L. STERN, M.D.

AND

KEN W. BLAKE, M.D.

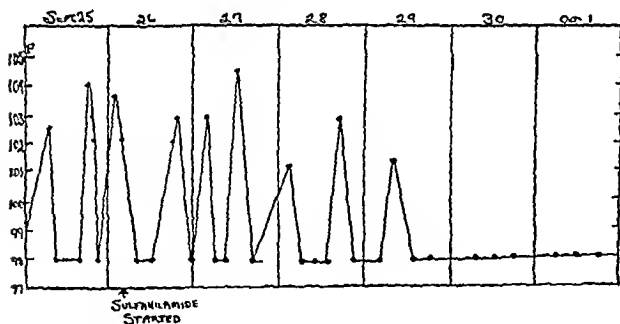
LOS ANGELES

The medical treatment of undulant fever has not included, as yet, any drug of relative therapeutic safety that is specific *in vivo* against the causative organism of the disease *Brucella melitensis*.

*Brucella melitensis*, originally known as *Micrococcus melitensis*, is pleomorphic; its morphology in part determined by the culture medium or the preparation used for its study. Morphologically it is considered variously by several authorities<sup>1</sup> on bacteriology to be a coccus, a bacillus or a coccobacillus. On this basis, with the effect of the drug in question established against certain other pathogenic bacterial forms, we, working independently, gave sulfanilamide in therapeutic doses to each of three private patients suffering from clinically and serologically established undulant fever. The following highly satisfactory and prompt results are reported.

## REPORT OF CASES

CASE 1—Miss M. R., white, aged 24, a movie actress, first seen by R. L. S. Sept. 5, 1937, stated that she had been in good health until September 3 when she felt feverish and chilly and had generalized muscular aching. The next day these symptoms continued and she also experienced a moderate



Temperature in case 1

frontal headache and stuffiness in the nose. In the afternoon her fever peak was 103 F. An inventory by systems revealed no other complaints. She had never experienced a serious illness or operation, but three weeks previously she had a tooth extracted with subsequent vague aches and a temperature to 101 F for three days. The patient was well developed and well nourished; she appeared feverish and was perspiring profusely. The afternoon temperature was 102 F, the pulse rate 100 and the respiratory rate 20. The blood pressure was 110 systolic 70 diastolic. Thorough physical examination revealed no abnormalities other than slight enlargement of the anterior cervical lymph glands and some tenderness of the leg muscles. The urinalysis revealed normal conditions. The Wassermann reaction was negative. Study of the blood showed the erythrocyte count to be 4,520,000 per cubic millimeter of blood and the hemoglobin 83 per cent. The leukocyte count was 6,100 per cubic millimeter of blood with a differential count of 68 per cent polymorphonuclear neutrophils, 2 per cent polymorphonuclear eosinophils, 26 per cent small lymphocytes and 4 per cent monocytes. Several subsequent examinations of the urine and blood revealed the same essentially normal results. Despite conservative treatment with salicylates and supportive measures

the fever continued and at the end of two weeks a regular daily occurrence of afternoon chill followed by a temperature of from 102 to 104 F for several hours, with rapid subsidence to normal in the early evening hours, had been established. During the morning she felt perfectly well and had no fever. Except for severe night sweats she had no other symptoms or complaints. Her appetite remained excellent and she ate heartily, according to instructions, so that despite the continued fever no loss of weight occurred during her illness. During this period physical examination had failed to reveal any additional abnormal changes except a marked coating of the tongue, halitosis, the daily fever and profuse sweats. At the end of the second week the peculiar pungent odor of the perspiration first gave the impression of probable undulant fever. X-ray examinations of the chest had revealed no abnormalities. Culture of the blood had remained sterile. Culture of the stool had revealed no growth of typhoid or dysentery bacilli. In the third week agglutination tests for the typhoid and paratyphoid group of organisms were negative but the agglutination for undulant fever was found to be strongly positive in dilutions to 1:1,280, beyond which it was not carried. A temperature chart was kept, during the second and third weeks it disclosed daily rises of from 102 to 104 F. As soon as the diagnosis was established, on the twenty-first day following the onset of symptoms, the patient was started on a regimen of sulfanilamide, which included 40 grams (26 Gm) the first day, 60 grams (4 Gm) the second, 80 grams (5.2 Gm) the third, 40 grams the fourth and then 20 grams (1.3 Gm) daily for one week more, each day's total in divided doses. During this period all other drugs were stopped. For the first three days the fever and chills continued, but on the fourth day after a noon rise of temperature to 101 F for one hour, the lowest peak in two weeks the temperature dropped to normal, and from then on no further chills or fever were experienced. At the patient's last visit, six weeks after becoming symptom free, she continued to feel very well and weighed 6 pounds (2.7 Kg) more than she had at the onset of illness. Her source of infection was apparently raw milk brought from a "fly by night" dairy which had changed hands several times during the past four months.

CASE 2—T. S., a man aged 47, a miner, first seen by R. L. S. Oct. 5, 1937, stated that he had felt perfectly well until Aug. 5, 1937, when general aching and fever developed. He consulted a physician, who told him that he had some congestion in the lungs. He was able to be up and about but continued to have a daily fever and felt poorly. During the latter part of September he went to the desert and attempted to work but suffered a severe exacerbation of symptoms. For one month before he was seen here he had severe daily chills, an afternoon fever accompanied by drenching sweats and almost constant headache. Between the chills he felt fairly well. He had lost 20 pounds (9 Kg). At the onset he had a "severe cough" which when first seen had eased to his usual "cigarette cough." An inventory by systems revealed no other complaints. The only relevant past history was gonorrhea in 1911 and a herniorrhaphy in 1934. He had eaten at several restaurants and hotels during the month previous to his illness but had ingested no known raw or goat's milk. The patient was gaunt and appeared exhausted; he perspired freely on exertion and had a short, loose cough. The afternoon temperature was 99.8 F, the pulse rate 88 and the respiratory rate 18. The blood pressure was 118 systolic 80 diastolic. The observations were otherwise essentially negative with the exception of injected sclerae and a few variable coarse rales in each lung base. A blood count gave normal results. Urinalysis showed a trace of albumin but was otherwise essentially negative. Fluoroscopy of the chest revealed only heavy bronchial markings. A tentative diagnosis of undulant fever was made and the patient was given salicylates and instructed to keep a temperature chart. A daily fever of from 99 to 100 F was recorded each afternoon during the two day interval necessary for the agglutination tests. October 7 the results were returned disclosing a negative agglutination for the typhoid and paratyphoid group of organisms and a positive agglutination for undulant fever in dilutions to 1:1,280, beyond which it was not carried. On the basis of the experience

1. H. C. P. H. and Zin er Hans. *Textbook of Bacteriology*. New York: D. Apple Co. & Co. 1931: 79. Kele W. and Her b H. *Experimental Bacteriology*, ed 7. New York: Macmillan Company. 1930: 103. Jordan E. O. *A Textbook of General Bacteriology*, ed 10. Philadelphia: W. B. Saunders Company. 1931: p. 102.

case 1, the patient was placed on a regimen of sulfanilamide. His weight was 167 pounds (76 Kg), he was, therefore given 60 grains the first and second days, 80 grains the third 40 grains the fourth and then 20 grains daily, each day's total in divided doses. All other treatment was discontinued. The drug was started on the evening of October 8. On October 12 he reported that he had experienced no fever, chill or other ill feeling for the past twenty-four hours. He has subsequently remained well, with no elevation of temperature noted to the present time. The daily 20 grain dosage of sulfanilamide was continued for six days into the afebrile period and then a dosage of 15 grains daily was continued for six days more. Since the cessation of the fever the patient has regained 10 (4.5 Kg) of the 20 pounds (9 Kg) of weight lost. It was impossible to trace the source of the patient's infection since he had eaten in a number of establishments during the several months preceding the onset of symptoms.

CASE 3—H F, a white man aged 38 first seen by K W B at 3 p m on May 16, 1937, complained of the sudden onset of a chill and fever three weeks previously after having bathed in the ocean. He had since had a daily afternoon fever, reaching 103 F on several occasions. He was growing extremely irritable, nervous and depressed. Having been on a starvation diet at the direction of an osteopath he had lost from 15 to 20 pounds (6.8 to 9 Kg). A migratory 'twanging' pain which was noted in the abdomen was localized in the left upper quadrant at the time of this examination. Inquiry by systems revealed a severe constipation, for which laxatives had been taken daily for several years but he had no other complaint. He stated that he had been drinking raw milk from a small dairy for the past five years and had eaten much ice cream. He had no access to the handling of raw meats. His past history revealed a "nervous exhaustion" in 1931 but no other illnesses, operations or accidents. Typhoid vaccine had been administered while he was in the army in 1918.

The patient was tall thin extremely irritable and nervous. He appeared to be acutely ill. The temperature was 101.4 F the pulse rate 84 and the respiratory rate 18. The skin was dry and warm and presented several small nevi over the anterior chest wall. Thorough physical examination revealed a dry and coated tongue a few fine rales in the left base of the chest posteriorly and a diffuse tenderness in the left upper quadrant of the abdomen in the region of the spleen. The blood pressure was 122 systolic 82 diastolic. The observations otherwise were essentially negative. The erythrocyte count was 4,890,000 per cubic millimeter of blood and the hemoglobin was 85 per cent Sahli. The leukocyte count was 5,750 per cubic millimeter of blood with 64 per cent polymorphonuclear neutrophils, 3 per cent polymorphonuclear eosinophils, 31 per cent lymphocytes and 2 per cent monocytes. Urinalysis revealed a specific gravity of 1.025 and an occasional leukocyte but no albumin, sugar or casts. A macroscopic agglutination test of serum versus *Bacillus abortus* on May 18 revealed complete agglutination in dilutions from 1:20 to 1:5,120. The blood Wassermann reaction was negative. The patient was treated symptomatically until May 22, when a course of sulfanilamide was undertaken. During the following thirty-six hours he was given 105 grains (7 Gm) of the drug in 15 grain doses. Owing to the onset of a slight vertigo the administration was stopped at 9 p m. By the following morning the temperature was again normal where it has remained to the present time. He was able to return to his work one week later and when he was last heard from November 15 he had gained approximately 30 pounds (13.6 Kg) and had experienced no evidence of a recurrence. The only other drug used during this entire time was a mild barbituric sedative.

#### CONCLUSIONS

1 Three patients with undulant fever were treated with sulfanilamide in tablet form with prompt clinical cure of the disease during the administration of the drug.

2 The maximum dosage according to present standards appears to be necessary.

727 West Seventh Street—1930 Wilshire Boulevard

## Clinical Notes, Suggestions and New Instruments

### CHIN TO CHIN LOCKING OF TWINS

H E BOWLES MD HONOLULU HAWAII

This report has been promoted by a recent statement of Peters<sup>1</sup> to the effect that he has been unable to find a single report of interlocking of twins in American obstetric literature. Furthermore, he brings out the fact that the Index Catalogue of the Library of the Surgeon General's Office covering the years 1912 to 1932 lists only three articles referring to this obstetric complication. All these are in the Swedish literature.

According to von Braun, the accident occurred in Vienna once in 90,000 labors. Coleman<sup>2</sup> in 1935 reported two cases in each of which the two fetal heads attempted to engage in the pelvis simultaneously. A commoner type is the descent of one fetus as a breech. Various combinations are possible. Our case presented chin to chin, with the second fetus attempting to enter the pelvis before the head of the first had been delivered. Peters' case was of this type. In his case the anomaly was detected in time to save both the mother and the twins by cesarean section. If the mother and the babies are to be saved the diagnosis of locked twins must be made early. It is facilitated by a previous roentgenogram. Every case in which a plural pregnancy is suspected should be given this aid to diagnosis. For a discussion of various steps in delivery of locked twins, the reader is referred to obstetric textbooks, which usually cover the subject thoroughly.

#### REPORT OF CASE

The patient was delivered vaginally of twins with locked heads, chin to chin. The first child was a double footling, and the second presented by its head.

Miss R H, aged 19, a primipara Caucasian-Hawaiian, was seen at one of Honolulu antepartum clinics twice prior to the onset of her labor. Her menstrual history had been negative. Her measurements were normal. The estimated date of confinement was December 25. Diagnosis of twins was not made by her physician during her two visits to the antepartum clinic December 11 and 18. Labor commenced about 8 p m December 26 and she remained at home until her admission to the hospital December 27 at 4:35 a m. Normal contractions continued with but little inconvenience. The membranes ruptured spontaneously at 11:15 a m.

The first inkling that there was anything peculiar about her case came at noon when a small fetus presented feet first. It was expelled as far as its shoulders. Nitrous oxide anesthesia was used at this stage. Strong contractions continued. Digital examination revealed a second fetal head and the chins of the two could be clearly palpated with the hands completely locked chin to chin. Under ether anesthesia an unsuccessful attempt was made to decompose the deadlock. No pulsation could be felt in the cord of the first fetus nor could any signs of life be detected. Fetal heart sounds of the second child were listened for but were not heard. The head of the first infant was readily severed by a stout pair of scissors. The head was now pushed up into the uterine cavity and the dependent cord was cut and tied. Ten minutes later the second infant emerged spontaneously. It showed no signs of life at birth. Neither child appeared the least macerated, and it was believed that both died during the labor. The first child weighed 4 pounds 2 ounces (1,871 Gm) and the second 4 pounds 13 ounces (2,184 Gm). Both were males. The decapitated head was expelled spontaneously and easily, and the placenta followed shortly after. One placenta was present with two cords and a single amniotic sac. A deep median episiotomy was done during the delivery and was repaired immediately after. Convalescence was as smooth as if nothing untoward had occurred. Healing was rapid and the patient was enjoying good health when last seen July 19, 1937.

From The Clinic  
1. Peters, Lindsay. Interlocking of Collusion of Twin. *Dystocia*. Iowa  
Cesarean Delivery. California & West Med. 16: 401 (June) 1917.  
2. Coleman, J. S. Two Cases of Twin Locking. *Lancet* 1: 196 (Jan  
2) 1936.

## COMMENT

The Index Catalogue from 1912 to 1932 lists only three titles of articles referring to collision or locking of twins, all in Swedish.

Peters' case is the only one in recent years to be reported in the American obstetric literature.

The commonest type is a breech followed by cephalic presentation, in a chin to chin locking.

Peters' case emphasizes the value of careful observation aided by roentgenography and cesarean section when favorable circumstances present themselves.

Our case presents the unfavorable or late stage of the complication in which decapitation of the first is usually the method of choice. The maternal convalescence was uncomplicated.

Early and regular attendance at antepartum clinics is to be urged.

Any patient in whom twins or any other peculiar presentation is suspected should have an antepartum roentgenogram. Any case in which there is a diagnosis of twins should be watched ceaselessly throughout labor.

Cesarean section is the method of choice in delivery if the diagnosis of locking is made early while the infants are viable. If the diagnosis is not made until one or both infants are dead, decapitation or craniotomy is the method least dangerous to the mother.

881 Young Street at Thomas Square

# ACTINOMYCOTIC MENINGITIS WITH A PRIMARY FOCUS IN THE FINGER

REPORT OF A CASE DIAGNOSED DURING LIFE

D. B. MORRISON, M.D., TOLONSHA MICH.  
ARTHUR A. HUMPHREY, M.D., AND JAMES E. BAILEY, M.D.  
BATTLE CREEK, MICH.

Actinomycosis of the central nervous system is a rare disorder, although the first case on record was recognized only a few years following the first description of the organism sixty years ago. We have noted 110 cases in the literature. For an exhaustive historical survey and bibliography, the reader is referred to the work of Friedman and Levy<sup>1</sup> in 1936.

We feel that the case presented here is unusual because of the focus of infection, for in nearly all instances the primary site has been in the bones and cavities of the skull or in the lungs. It is also among the relatively few cases in which the diagnosis was made prior to death and in which the patient had not been recognized for some time as being the victim of this disease in a more or less chronic and disseminated fashion.

## REPORT OF CASE

**History.**—A white boy, aged 12 years, admitted to the hospital Sept. 22, 1937, complained of pain in the occipital region, neck and back. These symptoms had been present for about three weeks prior to admission, with short remissions. Anorexia and vomiting had been present for ten days, and the patient had lost 15 pounds (68 Kg.). Two weeks before entry the child was taken to the attending physician primarily because of a painless lesion on the terminal phalanx of the left index finger, which had been increasing in size. This resembled a felon. It was incised and through and through drainage established. A thick, brownish pus was obtained, and on admission the finger was still draining.

About eight weeks prior to admission to the hospital the patient accidentally punctured the finger with a sharp object while working in an onion field. Little note was taken of the injury at that time.

The child had always been thin and underweight. No history of any major illness was elicited.

**Examination.**—The patient was obviously poorly developed and undernourished and, though acutely ill, was well oriented and cooperative. The weight was 64 pounds (29.5 Kg.).

There was nothing unusual about the skull, nose, ears and mouth. The pupils were equal and reacted, but there was a bilateral papilledema of the fundi. The neck was definitely rigid and there was pain on attempted flexion. The chest and abdomen appeared essentially normal. The left index finger showed small, unhealed incisions on either side of the terminal phalanx. A tumor the size of a walnut was noted in the left antecubital space. This was fixed to the surrounding tissue, and a similar one, somewhat smaller, was noted on the calf of the right leg. Neurologically, the reflexes were hyperactive. A bilateral Hoffman and a positive Kernig sign were present. The Babinski sign was not elicited.

On entry the patient had a temperature of 100.5 F, a pulse of 58, and a respiratory rate of 20 per minute. During the sixteen day period of observation the temperature varied between normal and 104 F. There were days when the patient appeared to be quite comfortable and actually seemed to be improving. Severe headache was a prominent symptom. Six days before death a spastic hemiplegia involving the right side of the neck, arm and leg developed. Diplopia and aphasia developed, followed by coma. Convulsions of the jacksonian type occurred frequently during the last few days and were controlled only by intravenous administration of sodium amylal. The patient died following a convulsion on October 8.

The following laboratory procedures entered into the establishment of the diagnosis. On admission a spinal puncture revealed that the fluid was turbid and under pressure, 25 cc was removed. The following day this was repeated and the pressure was found to be 550 mm of water. The Queckenstedt sign was present. Several subsequent taps were performed, with a temporary relief of symptoms. Spinal fluid cell counts ranged from 2,676 per cubic millimeter on the first tap to 7,130 on the final one. Polymorphonuclear leukocytes constituted from 70 to 80 per cent of the cells, and the lymphocytes varied from 20 to 30 per cent. Globulin always occurred at least as a heavy trace, and a funnel shape pellicle formed in the fluid in a very short time. No organisms could be demonstrated, although repeated efforts were made. Various methods of taking cultures and a variety of mediums failed to grow any colonies. A rabbit inoculated intracranially showed no evidence of pathologic change when killed seven weeks later and examined post mortem.

September 24 material was taken for a biopsy from the wall of the tumor in the left antecubital space. This proved to be an abscess, and about 28 cc of a brown, purulent material was removed which seemed to penetrate into the deeper tissue. A cover-slip was placed over this fresh material and the microscopic examination showed a fungus with the typical rays and clubbed borders of Actinomyces. After this discovery similar yellowish clumps were found in the discharge from the initial lesion on the finger.

The blood count on admission showed a mild secondary anemia, and a leukocyte count of 23,700 per cubic millimeter. 88 per cent of which were polymorphonuclear leukocytes and 12 per cent lymphocytes. The urine was normal.

All reported cases of involvement of the central nervous system by Actinomyces have terminated fatally, nevertheless large doses of iodides were given. Spinal taps afforded only a transient relief.

**Necropsy.**—The left index finger presented the felon like lesion previously mentioned. The surgical incision in the medial portion of the left antecubital space also remained unhealed. The pus containing the actinomyces had been removed from this area fifteen days before death.

Nothing of note was observed in the abdomen or thorax except a small abscess the size of a walnut near the hilum of the right lung. The pus from this abscess was thick and yellow and fresh preparations demonstrated typical microbial elements.

The brain showed a marked flattening of the convoluted surface. The entire base of the brain and the upper portion of the spinal cord were covered with a thick yellowish purulent exudate. The fluid in the left ventricle and cisterna as well as

From the Pathological Laboratory of the Leila L. Post Montgovery Hospital, Battle Creek, Mich.

<sup>1</sup> Friedman, E. D. and Levy, H. H. Actinomycotic Infection of the Central Nervous System. Report of a Case and Review of the Literature. Internal Clin. 2: 36-61 (June) 1937.

welling from the foramen magnum, was thick and purulent. The impression gained was that an abscess had ruptured into the left ventricle, but the involvement was so general and marked that this could not be proved. Wet, cover-slipped preparations showed numerous mycelial filaments in the thick fluid.

Microscopic examination was rather disappointing as far as the demonstration of the fungus was concerned. Sections through the brain revealed a dense lymphocytic exudate over the cortical surface in the involved areas. Aggregations of plasma cells and areas of hemorrhage were noted in the cortex immediately underlying this exudate. The sections through the wall of the ventricular abscess showed dense masses of plasma and lymphocytic cells, a marked intimal hyperplasia and areas of necrosis with vaguely formed mycotic filaments. Sections through the lung abscess and the antecubital abscess wall failed to demonstrate any typical actinomycetes.

## COMMENT

The symptomatology of actinomycotic involvement of the central nervous system varies as to the type and extent of the pathologic process present. In an abscess the course may be long and associated with remarkable remissions, such a lesion may also mimic a neoplasm. In the meningitic form the outstanding characteristic is the comparative well being and excellent condition of the patient in contrast to the profound changes in the spinal fluid. The symptoms of a low grade meningitis are present, such as headache, vertigo and cervical rigidity. The patient is less toxic than in a tuberculous condition, and the spinal fluid changes differ. The latter condition is the most frequently confused, but here the spinal fluid is less purulent and the lymphocytes predominate in the differential count rather than the polymorphonuclear leukocytes, furthermore, the probability of isolating the specific bacillus is infinitely greater than finding the fungus.

Because of the indolent character of the lesion on the finger a fungous infection was suspected before the organisms were demonstrated in this primary focus and the antecubital abscess. The painless felon that did not improve after drainage could scarcely have been on the basis of a pyogenic infection.

An astonishing but typical feature of this case was the excellent physical and mental condition of the patient in the face of a spinal fluid tap, in which the purulent nature of the fluid almost prevented its removal through a large needle. This paradox was rendered even more bizarre by the apparent improvement from time to time with no variation in the cell count of the spinal fluid.

We were aware that many strains of this organism are apathogenic to animals and thus were not certain of producing the disease when it was injected into the rabbit. The failure to grow cultures from the spinal fluid, however, made us believe that the mycotic filaments do not stray far from the original focus in the fluid or lose their viability. It is interesting to note that organisms in the cerebral pus were of the branching, filamentous type, with only a vestige of clubbing and resembled that grown on artificial mediums. The pus from the antecubital abscess and finger, however, exhibited the typical clubbed "sulfur" granules.

If the lesions on the extremity had healed before the cerebral symptoms preempted the clinical picture, one would have been prone to consider this a "primary" actinomycotic involvement of the central nervous system. That such a primary site exists is questioned by Zeitlin and Lichtenstein<sup>2</sup> who in 1937 were able only by microscopic study to find an extracerebral primary lesion.

## SUMMARY

The case of basilar actinomycotic meningitis here reported was diagnosed prior to death. The point of entrance through the wound on the finger is unusual, the primary focus in most cases being in the cranial bones or the respiratory system.

It is felt that diagnosis by means of demonstrating the organism in the spinal fluid is difficult, but in any case of purulent meningitis in which the patient is not acutely ill, actinomycetes may be suggestive as a causative factor.

<sup>2</sup> Zeitlin, Howard and Lichtenstein, B. W. Actinomycotic Abscess of the Brain. Arch. Path. 23: 58-66 (Jan.) 1937.

## Special Article

NOISE AND ITS EFFECT ON  
HUMAN BEINGSNOISE CONTROL AS A BY-PRODUCT OF  
AIR CONDITIONINGCAREY P. McCORD, M.D.  
DETROITEDWIN E. TEAL, M.S.  
ANN ARBOR, MICH.AND  
WILLIAM N. WITHERIDGE, M.S.  
DETROIT

Air conditioning and noise prevention have a definite relationship in controlled human environments. Whenever the windows of buildings are kept closed to exclude noise, air conditioning may become a practical necessity. Conversely, it follows as a natural consequence that occupants of buildings living in artificial atmospheres and thus not dependent on open windows and doors will in some measure be protected against extraneous noises arising from traffic, nearby buildings or low flying aircraft. This beneficent by-product of air conditioning is considered of such importance by the Association's Committee on Air Conditioning that this report has been prepared to embody present concepts of noise in its relation to the comfort and health of human beings.

The multiple and insidious ill effects of noise constitute an inadequately recognized baneful influence on the lives of many million persons throughout the country, especially those who live in urban areas. In noisy industrial employments it is not unusual to find in those groups of workers below 30 years of age as many as 50 per cent with some degree of impaired hearing. This noise deafness constitutes the most serious and tangible of the ill noise effects (echeoses), but there is, in addition, a host of scarcely measurable injuries made evident by neuroses, loss of sleep, excessive fatigue, emotional disturbances and the like that jeopardize the complete well-being of most persons, and in which noise may well play a part.

## DEFINITIONS

Before the effects of noise on human beings are discussed a few of the more frequently used technical terms will be defined.

1. *Sound*—In a physical sense, sound may be defined as a wave motion or vibration in an elastic material medium such as the atmosphere. Physiologically, sound is the sensation produced primarily by air-borne vibrations reaching the ear. The auditory nerve impulses which are perceived as sound originate in the cochlea, a specialized part of the inner ear. This organ is sensitive to displacements of the surrounding fluid (endolymph) which correspond to the variations in air pressure commonly termed "sound waves."<sup>1</sup> Bone

<sup>1</sup> From the Department of Engineering Research, University of Michigan (Mr. Teal).

<sup>2</sup> From the Bureau of Industrial Hygiene, Department of Health (Dr. McCord and Mr. Witheridge).

This is the fourth in a series of publications related to air conditioning which are being prepared by the American Medical Association's Committee on Air Conditioning. This committee has the following members: Emory R. Hayburn, Columbus, Ohio; William F. Peter, Chicago; Horatio B. Williams, New York; Constantin I. Yaglou, Boston; and Carey P. McCord, Detroit, chairman.

1. (a) Winton and Bayliss, Human Physiology, ed. 2, Philadelphia: P. Blakiston's Son & Co., 1935. (b) Ballenger, W. L., Diseases of the Nose, Throat and Ear, ed. 6, Philadelphia: Lea & Febiger, 1930.

conduction of sound vibrations also occurs to some degree and is made use of in certain types of "deaf aids" Bone conduction is particularly important when noise is simultaneously transmitted by sound waves through the air and by vibrations through the skeleton

2 *Noise*—Noise is sound which is generally considered unmusical, confused discordant, irksome or disturbing. Physically, noise may be the result of either a single frequency or many component frequencies

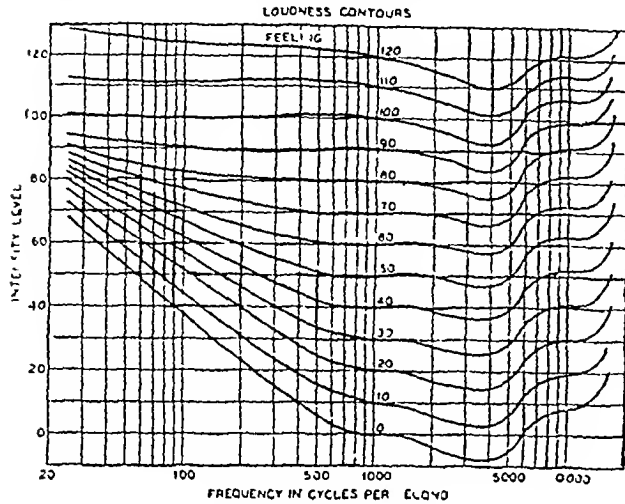


Fig 1—Relation between subjective loudness, sound intensity, and sound frequency (Proposed Standards for Noise Measurement as adopted June 26 1933 by the A. S. A. Committee on Acoustical Measurements and Terminology, Journal of the Acoustical Society of America 5: 109 [Oct.] 1933)

which bear no harmonic relation to one another. Harmonic sounds also may have the same unpleasant effect as noise if their intensities become too great. It should be borne in mind that the distinction between noise and music cannot be made on a strictly physical basis, since individuals differ widely in sensitivity, temperament and sound appreciation and therefore will not unanimously agree to an arbitrary differentiation between musical sounds and noise.

3 *Intensity and Loudness*—Besides frequency or pitch (number of vibrations or cycles per second), sounds have two closely related attributes: intensity and loudness. That intensity and loudness are not synonymous is due to the fact that the ear is not uniformly sensitive throughout the entire range of audible frequencies. 'Intensity' is a physical term used to denote the amount of sound energy passing through a unit area per unit of time. 'Loudness,' on the other hand, refers to the sensation evoked by a given sound intensity. Thus the loudness of a sound depends both on its intensity and on the physical characteristics of the ear. The ear is sensitive to a range of frequencies from 16 to 22,000 cycles per second, but is most sensitive between 1,000 and 5,000 cycles (fig 1).

4 *Decibel Scale*—Because of the enormous range of intensities experienced with audible sounds, a logarithmic scale is much more convenient than an arithmetic scale for the measurement or comparison of sound intensities. The unit of the logarithmic scale in general use is the bel and is defined thus: If the intensity of a sound increases ten times, its intensity level is said to have risen one bel; if it increases a hundred times, two bels. Accordingly, the rise in bels is simply the common

logarithm of the ratio of the two sound intensities. The "decibel" or one tenth of a bel, is a more convenient unit for sound intensity measurements and as a result is used in preference to the bel.

The smallest intensity of sound required to produce a sensation is said to be on the threshold of audibility, or threshold of hearing. This point is zero on the decibel scale (tables 1 and 2). When the intensity of sound is increased until it is felt as well as heard, it is said to be on the threshold of feeling. This point, known as the upper limit of audibility, is near 120 decibels for certain sound frequencies. At such a level sound has an intensity of one trillion (1,000,000,000,000) times its threshold value. A change of five decibels is barely perceptible at very low noise levels, whereas a change of about 0.3 decibel is noticeable at noise levels of 80 decibels or higher.

#### COMBINED SOUNDS

If one loud noise is present with several lesser noises, the total noise level in decibels usually is but little above that of the loudest noise. Consequently the amount of reduction that may be obtained in the total noise level will correspond closely to the reduction that can be made in the loudest component. If several noises arrive at one point with the same intensity, the combined noise level will be only a few decibels above that of any one component.

For example, two identical whistles sounded together do not make a noise twice as loud as one. Instead they make a combined sound three decibels louder than that of one whistle. Thus if each whistle produces a 75 decibel sound, the two together will give a sound of 78 decibels. It would take 100 identical whistles to make a noise 20 decibels louder than that of one whistle sounded alone (table 3).

#### MEASUREMENT OF NOISE

1 *Sound Level Meter*—Accurate measurements of the intensity of sound are made with "sound level meters" in which acoustical oscillations are translated into electrical oscillations and then amplified by high quality vacuum tubes. Measurements which largely depend on the ear cannot be considered accurate and may lead to discrepancies which prevent direct comparison between the results of independent noise studies.

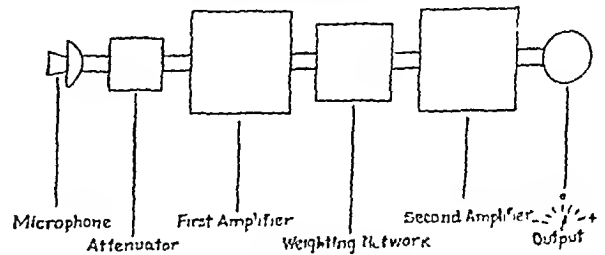


Fig 2—Diagram of sound level meter

Figure 2 is a block diagram of the typical sound level meter. The "weighting network" of this meter is designed to simulate the ear's reduced sensitivity at the highest and lowest frequencies (fig 1). Whenever it is desired to analyze the character of a sound, the weighting network is replaced by an analyzing circuit using filters which cut out all but certain bands of frequencies. The sound level meter then becomes an

2 Gillemester, Martin. Investigations on the Limitations of Human Hearing. Berlin Letter 1. A. M. A. 80: 1533 (May 16) 1923. Bulletin 10, 1923.

3 Geiger, P. H. How to Avoid Trouble from Noise in Air Conditioning Installations. Heating, Piping and Air Conditioning 9: 61 (Nov.) 1936.



analyzer by which sounds of particular frequency may be identified from complex noises, this is especially valuable in determining the source of noises from machinery

2 *Audiometer*—Another instrument for the measurement of noise is the “audiometer,” which may be used over almost the entire auditory spectrum either

are made with the other two tuning forks in order to determine the approximate frequency distribution of the noise, as well as the intensity at each frequency

EFFECTS OF NOISE

There is both practical and experimental evidence that noise has been responsible for impaired hearing, fatigue, neuroses, increased blood pressure, and decreased working and mental efficiencies. Experience indicates that a noise level of 90 decibels or higher is definitely harmful to the human ear.<sup>5</sup> Exposure to prolonged noises of lower level, which is the case with many occupational noises, is also harmful, but the extent of harm done is not well known and cannot be fairly estimated at this time.

1 *Annual Experiments*—Blake<sup>6</sup> states that experiments on animals show very definitely that high-pitched sounds of various kinds and low-pitched sounds under certain conditions of resonance produce degenerative changes in the organ of Corti, “beginning in the nucleated ciliated cells, progressing to the neuron and then, secondarily, attacking the vibrating mechanism and extending to the contiguous membranous labyrinth.” A few experiments with animals have shown a tendency for hearing to be impaired more by vibrations transmitted through the bony structure of the body to the ear than by air-borne vibrations coming through the external ear.

Popoff<sup>7</sup> placed white mice in a factory where hot steel bars were hammered into scythes. The principal sound frequencies present were from 60 to 100 cycles and from 2,000 to 3,000 cycles per second. One group of ten mice was placed in a cage in contact with the

TABLE 1—Relation of Certain Sounds to the Threshold of Hearing\*

Average Decibels	Source or Description of Sound
130	Threshold of painful sounds, limit of ear's endurance
120	Threshold of feeling (varies with frequency)
115	Airplane motor (1 600 revolutions per minute) 18 feet from propeller
110	Steel plate hammered by four men 2 feet
105	Express train passing at high speed
100	Loud automobile horn 23 feet
90	Pneumatic drill 10 feet
85	Very heavy street traffic along elevated line
80	Street car crossing tracks
80	Police whistle 15 feet
80	Very loud radio music in the home
75	Heavy street traffic
75	Snow scraping and shoveling 15 feet
70	Interior of street car
70	Loud peal of thunder (1 to 3 miles)
65	Usual loudness of radio music in the home
60	Ordinary conversation 3 feet
55	Speech in a small auditorium
50	Conversational voice 12 feet
45	Speech in a large auditorium
45	Near outlet of ventilating duct in high school auditorium (very noisy)
40	Center of New York, quietest time of night
35	Loud fan noise in theater
35	Soft radio music in the home
30	Ticking of watch 3 feet
30	Quiet street, no traffic
20	Whisper 4 feet
15	Quiet fan noise in theater
10	Rustle of leaves in gentle breeze
8	Near outlet of ventilating duct in talking picture studio (Planned control of noise)
0	Threshold of hearing, faintest audible sound

\* Adapted from similar tables (City Noise Report of the Commission Appointed to Study Noise in New York City, Noise Abatement Commission, Department of Health, New York 1930; Churcher, B. G., King, A. J., and Davies, H., The Measurement of Noise with Special Reference to Engineering Noise Problems, J. Inst. Elect. Engineers 75, 401 [Oct.] 1934; Winton and Bayliss<sup>14</sup>; Kaye<sup>25</sup>; Geiger<sup>3</sup>; American Society of Heating and Ventilating Engineers Guide for 1936).

for measurement of hearing deficiency or for determining the masking effect of a noise. This instrument consists of a unit for generating, in a special earphone, a standard sound, which may be adjusted to any given level of sound intensity. To determine the masking effect of a noise, the intensity of the standard sound in the earphone is varied until it can just be heard in the presence of the outside noise. For hearing measurements, the signal from the audiometer is varied over the audible range of frequencies to determine the threshold of perception of the subject at several sound frequencies.

3 *Tuning Fork Method*—A simple method of measuring the masking effect of noise sufficiently accurate for some types of field work employs only three tuning forks producing different sound frequencies (usually 128, 512 and 2,048 cycles per second) and a stop watch.<sup>4</sup> The observer, in the presence of the noise to be measured, strikes one of the tuning forks a “standard” blow. At the same instant he starts the stop watch. The fork is then held near the ear and moved back and forth slightly until its tone is completely masked by the noise, at which time the watch is stopped. The average time for several tests is subtracted from the time during which that particular tuning fork remains audible in a quiet place. This difference is then translated mathematically into decibels. Similar measurements

TABLE 2—Decibel Scale Compared with Subjective Loudness Scales

Identification	Objective (Stimulus Intensity)		Subjective (Sensation Produced)	
	1 Decibels— Logarithmic Scale of Intensity*	2 Arithmetic Scale of Relative Intensity	3 American Standards Association Proposed Loudness Scale†	4 Relative Loudness Scale of Churcher, King and Davies‡
Threshold of feeling (aural)	120 110 100	10 <sup>1</sup> = 1 000 000 000 000	60 000 220 000 85 000	61 000§ 40 000
Pneumatic drill 10 feet	90 80 70	10 <sup>0</sup> = 1 000 000 000	25 000 17 000 8 000	25 000 16 000 8 000
Ordinary conversation 3 feet	60 50 40	10 <sup>-1</sup> = 1 000 000	4 400 2 200 1 000	4 400 2 200 1 000
Tick of watch 3 feet	30 20 10	10 <sup>-2</sup> = 1 000	260 100 14	400 120
Threshold of hearing	0	10 <sup>-3</sup> = 1	1	

\* At 1 000 cycles per second.  
† Proposed standards for noise measurement as adopted June 26, 1933 by the American Standards Association Committee on Acoustical Measurements and Terminology, J. Acoust. Soc. America 5, 109 (Oct.) 1933; Geiger<sup>3</sup>.  
‡ Churcher, King and Davies (reference given in table 1).  
§ The figures in this column represent original units multiplied by 400 to facilitate comparison with column 3.

floor, while another group was placed in a cage suspended from the ceiling by means of a spring. The two groups of mice were exposed to the same sound

<sup>4</sup> American Society of Heating and Ventilating Engineers Guide for 1936.

<sup>5</sup> McKenzie, Dan, Noise and Public Health, J. State Med. 12, 542 (Sept.) 1934.  
<sup>6</sup> In Rober, G. M. and Hayhurst, E. R., Industrial Health, Philadelphia, P. Blakiston's Son & Co., 1924.  
<sup>7</sup> Popoff, A. F., On the Changes in the Auditory Apparatus of White Mice Caused by Noises in the Metal Trades, Preliminary Report from the All Russian Congress of Otolaryngologists held at Moscow in 1927, J. Indust. Hyg. Abstr. 13, 1\* (Jan.) 1931.

vibrations for eight hours each day. In twenty days an examination of one of the mice from the cage on the floor showed destructive changes at the commencement of the basilar membrane. The corresponding sections of the organ of Corti were destroyed and changes were noted in the neighboring ganglion cells. In three months the destruction was observed in another mouse to have extended to higher windings of the cochlea. There was destruction of the ganglion cells with their afferent and efferent fibers inside the lamina spiralis and corresponding portion of the modiolus. In eight months, ganglion cells and nerve fibers of the upper convolutions had disappeared. At the same intervals, mice from the suspended cage were observed to have suffered no changes in their auditory apparatus.

Wittmaack<sup>8</sup> subjected six guinea pigs to the continuous ringing of an electric bell suspended in their cage, dissection at five, ten, twenty, thirty, forty and sixty days showed no damage to the auditory apparatus. When the vibrations were transmitted through the tin floor of the cage, the animals became emaciated rapidly and two died after fourteen days. The others were killed and characteristic degeneration was found in the cochlea.

TABLE 3—The Change in Decibels Corresponding to Multiple Increases in Sound Intensity

If sound intensity is multiplied by	The change in decibels is
2	3.0
3	4.8
4	6.0
5	7.0
6	7.8
7	8.5
8	9.0
10	10.0
20	13.0
50	17.0
100	20.0
1 000	30.0

Although these experiments tend to indicate that bone conduction is the more active cause of ear degeneration, the work of other investigators indicates that air conduction likewise is responsible for deafness and deterioration of the auditory apparatus. Yoshii,<sup>9</sup> repeating Wittmaack's experiments with guinea pigs, was able to demonstrate the presence of lesions after exposure of the animals to purely air-conducted sounds. Von Eichen<sup>8</sup> plugged the left ear of an animal and subjected it to a whistle tone C5.<sup>10</sup> On examination, he found that only the right labyrinth was affected. Grunenberg<sup>8</sup> exposed the right ear of a pigeon for about fourteen days to continuous tones of whistles A3 and A4<sup>11</sup> and found that damage occurred only in the right cochlea. Hoessli<sup>9</sup> placed animals in a suspended section of an iron water pipe which was struck continuously by an automatic hammer to create sounds similar to those produced in boilermaking. He found that when one ear was closed a degenerative process occurred only in the other ear and that when both ears were closed there was apparently no damage done to either ear. Hoessli<sup>9</sup> also conducted experiments with animals insulated, as far as bone conduction was concerned, by a matting of felt placed on the floor of the cage, as suggested by Wittmaack, but found that this had no effect in preventing the onset of the disease process.

Boulin<sup>12</sup> reported that mice subjected to noise did not thrive as well as those kept in a quiet place.

With the cathode ray oscillograph, Wever and Bray have studied electrical changes in the auditory nerve of anesthetized animals in response to sound. "When exposed to tones sufficiently loud to make them deaf to the tones, dogs were found to lose the electrical cochlear response to the tones. The electrical response for high tones is more readily picked up from the base of the cochlea than it is from the apex, while the reverse is true for low tones."<sup>13</sup>

Davis<sup>14</sup> subjected cats and guinea pigs to tones of from 600 to 2,500 cycles per second varying in intensity from 65 to 106 decibels. Four animals exposed to a 600 cycle tone at 95 decibels for seventy days showed a maximum loss of sensitivity of 20 decibels. Three guinea pigs exposed to a 2,400 cycle tone at 97 decibels for 40 days and four exposed to a 2,500 cycle tone at 106 decibels for forty-five days all showed loss of sensitivity electrically and degeneration of the organ of Corti histologically. The loss of sensitivity in this group varied from 20 to 76 decibels.

Microscopic examination of animals subjected to definite sound frequencies has shown that the section of the cochlea most seriously affected is that which is believed to be resonant to the test frequency.

In guinea pigs and other small mammals subjected to such stimulation, injury to the apical turn of the cochlea in response to low tone stimuli, and basal disorganization for high tones has been demonstrated histologically. More recently despite the very considerable histological difficulties which arise when dealing with human material, lesions in the basal turn have been demonstrated in boilermakers and others, whose working conditions are such that they are subjected to loud noises of high frequency for some years. Such men become deaf to high tones by correlating the range of frequencies over which the patient was deaf with the position of the cochlear injury examined histologically after death, those regions of the human basilar membrane which are resonant to frequencies from 2,000 cycles per second upwards have been roughly located.<sup>15</sup>

**2 Human Hearing Impairment**—Audiometer experiments on human beings indicate that workmen exposed to particular frequencies after a time become deaf to those frequencies, and in many cases deficiency appears first in the high frequency range. The lower part of the organ of Corti, which is the area concerned with the perception of the higher frequencies of sound<sup>16</sup> appears to be especially vulnerable, either because of the small amount of blood supply to that area (Haber mann) or because it is the most delicate and highly developed part of the organ (Rodger).<sup>17</sup>

The study of industrial noises is of comparatively recent date, and the increasing interest is accounted for partly by the increase in industrial noises and partly by a better realization of their harmful effects and of the waste of energy which they produce.

Auditory diseases arising from occupation generally are due to a chronic degeneration of the cochlea. They are serious in proportion to the length of time employees have worked at noisy occupations.<sup>18</sup> Occupational

<sup>12</sup> Boulin, P. Noise and Its Influence from the Viewpoints of Inconvenience, Health and the Productive Capacity of Workers. *J. Indust. Hyg. Abstr.* 13: 217 (Oct.) 1931.

<sup>13</sup> Recent Research on Hearing, editorial. *J. A. M. A.* 110: 1 (March 19) 1933.

<sup>14</sup> Davis, Hollowell, Derbyshire, A. J., Kemp, E. H., Lurie, M. H. and Upton, Morgan. Experimental Stimulation Deafness. *Science* 61: 101 (Jan. 25) 1935.

<sup>15</sup> Rodger, T. K. Noise Deafness: A Review of Recent Experimental Work and a Clinical Investigation into the Effect of Loud Noise on the Labyrinth in Boiler Maker. *J. Laryng. Rhin. & O.* 50: 1 (March) 1932.

<sup>16</sup> Occupation and Health, vol. II. International Labor Office, Geneva, Switzerland, 1934.

<sup>8</sup> Cited by Pedley, F. G. The Incidence of Occupational Deafness and Methods for Its Prevention. *Safety Engineering* 60: 237 (Oct.) 1930.

<sup>9</sup> Cited by Rodger.<sup>15</sup>

<sup>10</sup> 1,024 cycles per second on the scientific musical scale.

<sup>11</sup> 427 and 853 cycles respectively.

deafness usually develops in the worker gradually, but in many cases of exposure to intense high frequencies the accrued damage is permanent

Gottstein and Kayser found that of seventy-five smiths and machinists 40 per cent were definitely hard of hearing and only 39 per cent had normal hearing. Holt found only 10 per cent of forty coppersmiths with normal hearing. Barr reported normal hearing in only 9 per cent of 100 boilermakers. Habermann found that of thirty-one boilermakers none had normal hearing.<sup>17</sup>

In a survey reported by the New York Department of Labor<sup>18</sup> 1,040 workers in many different noisy industries were tested for deafness and, as might be expected, the highest incidence of deafness for any age group was found in the noisiest industries, that is, where the noise level was between 60 and 80 decibels. Of those workers who were exposed to noise for twenty-five years or more and who did not have a history of disease which might have been a causative factor 26.9 per cent were deaf in some form, while in the group exposed to noise for less than one year only 6 per cent appeared to have any impairment of hearing. Of the 246 persons found deaf, ninety-one had histories of infectious ear involvement and the deafness of 155 was traceable to industrial causes.

McKelvie<sup>19</sup> found a 24.3 per cent occurrence of deafness among 1,011 weavers examined, of which 67 per cent was nerve deafness. However, no case of nerve deafness, which is the type due to long exposure to noise, was found in weavers employed less than ten years. The number of cases increased with the years of employment, and this was especially evident among those who had worked twenty years or more.

It has been observed that many locomotive crewmen are partially deaf, and if this deafness has progressed too far they are apt to be turned down after years of continuous work when they come up for annual examination.<sup>20</sup> Thompson<sup>21</sup> has stated that 45 per cent of these workers have impaired hearing. Gilbert<sup>8</sup> noted that 58 per cent are affected within five years, and after twenty years 52.1 per cent have defective hearing. Peyser<sup>9</sup> believed that most of this deafness among locomotive workers is due to bone conducted vibrations. McCord<sup>22</sup> reported a 52 per cent incidence of occupational deafness in train dispatchers, and this occurs largely in the telephone ear—the left.

Very loud, sudden noises, explosions or excessive pressure changes are dangerous, particularly to the tympanic membrane or the bony structure of the middle ear. In a trade such as drop forging where large pressure changes occur, it is found that many workmen acquire a thickening of the eardrum which prevents airborne sounds from passing readily to the inner ear. So regularly are drop forge operators partially deaf that this impairment in some instances is regarded as their proof of occupational experience. Unless hearing is damaged, applicants claiming experience may not be employed.

Seventy-five soldiers who handled and fired anti-aircraft guns were examined before firing was begun and reexamined one week after completion of the firing

tests, which occupied a period of about two months. Vadala<sup>23</sup> concluded from these tests that "the long continued and oft repeated tubotympanic congestion resulting from gunfire has a gradual diminishing effect on the acuteness of hearing by causing a chronic catarrhal condition of the tympanum with loss of elasticity of the drum, and fibrous adhesions."

Noisy work performed in a confined space is more harmful to the ears than if done in the open air. Hammering inside a boiler or firing in an enclosed rifle range is especially dangerous since resonance, reflection and reverberation accentuate the noise. On this account work in much used vehicular or railway tunnels or subways is conducive to loss of hearing.

It is pointed out in the New York report on "City Noise" that policemen and taxi drivers are very often affected with deafness because of their continuous work in traffic. One British physician has expressed the belief that the opening of a new street carrying heavy traffic through a certain formerly quiet suburb caused the number of illnesses in that community to increase.

It has been observed that dizziness sometimes is a result of exposure to excessive noise or vibration.<sup>24</sup> Sounds that are of such pitch or intensity as to cause a tingling sensation or pain in the ear will probably cause permanent damage if exposure is continued over a long period.

High-pitched tones appear to be more dangerous than tones of low pitch from evidence both in human experience and in animal experimentation. The din in boiler works is considered by some investigators to be more injurious than the roaring in cotton spinning mills, the report of small caliber artillery and machine guns is likewise more injurious than the boom of heavy guns, unless the latter actually ruptures the tympanic membrane.

**3 Effect of Noise on Working Efficiency**—Most of the investigative work on noise has been concerned with the physiologic effects of a noisy environment on non-auditory performance. This is practically justifiable since relatively few tasks of daily life have a direct, and fewer still an exhaustive, auditory basis. Just how much and in what manner the initial effects of a noise stimulus on nonauditory performance differ from the final or chronic effects is a problem offering extensive opportunity for research.

Weston and Adams<sup>25</sup> observed that weavers using ear defenders in alternate weeks over a period of twenty-six weeks had an increased output of about 1 per cent when the defenders were worn. In this case the effect of ear defenders was to reduce the loom noise from 96 to 87 decibels. Their experiments prompted the conclusion that, "even after years of work in a noisy environment, the worker does not become completely adapted or acclimated to noise but goes through the process of adaptation daily." In a later series of experiments they<sup>26</sup> found that the output of weavers was increased about 3 per cent by an apparent decrease in noise level of 15 decibels (from 96 to 81) when ear

23 Vadala A J. Effects of Gun Explosions on the Ear and Hearing Mechanisms. Mil Surgeon CG 810 (June) 1930.

24 Effect of Noises on the Hearing of Workmen. U S Monthly Labor Review 20 1133 (May) 1925. Rodgers.

25 Two Studies in the Psychological Effects of Noise. I Pollock K G and Bartlett F C. Psychological Experiments on the Effects of Noise.

II Weston H C and Adams S. The Effects of Noise on the Performance of Weaver. Brit M Research Council Indust Health Research Board Report 65 His Majesty's Stationery Office London 1932 abstr J Indust Hyg 15 18 (March) 1934.

26 Weston H C and Adams S. The Performance of Weavers Under Varying Conditions of Noise. Brit M Research Council Indust Health Research Board Report 70 His Majesty's Stationery Office London 1935.

17 Smyth H F. Noise in Industry. Its Effect on the Hearing and on General Health. Ann Otol Rhin & Laryng 41 1108 (Dec) 1932. Thompson.

18 Effect of Noise on Hearing of Industrial Workers. New York State Dept of Labor Spec Bull 166 1930.

19 McKelvie W B. Weavers Deafness. J Laryng Rhin & Otol 45 60, (Sept) 1933.

20 Swann C C. The Effect of Noise on Hearing. International J Med & Surg 46 314 (July) 1933.

21 Thompson W G. The Occupational Diseases. New York D Appleton & Co 1914.

22 McCord C P. The Heart Problem of the Worker. Assn of Life Ins Medical Directors of America 1931.

defenders were used. In terms of personal efficiency, this was equivalent to an increase of about 75 per cent with subdued noise. It was stated that the change from 96 to 81 decibels probably represented about a 50 per cent reduction in apparent loudness.

Table 4 gives the effect on the sensation of loudness by reducing sound intensity 10 decibels at different positions on the decibel scale. Although the results of independent investigations do not agree in every instance, it is apparent that the initial sound intensity as well as the change in intensity must be considered when estimating the effect of such a change on the sensation of loudness.

Obata<sup>28</sup> ran tests on children and adults for their efficiency in addition and in marking out certain Japanese letters (syllables) in a confused jumble of 1,600 letters under the influence of various types of noise and music. In nearly every case, working speed rather than accuracy was reduced. Soft recorded music appeared to have a more distracting effect on the subjects than did ordinary low level noise. However, if

TABLE 4—Effect of Reducing Sound Intensity Ten Units at Different Positions on the Decibel Scale

Sound intensity in Decibels		Per Cent Reduction in Sensation of Loudness*		
Initial	Final	A S A <sup>2</sup>	Geiger <sup>27</sup>	Churcher <sup>†</sup>
100	90	57		35
90	80	55		38
80	70	53	46	45
70	60	45	50†	50
60	50	50	56†	50
50	40	55	64†	55
40	30	64	74†	60
30	20	72	87	70
20	10	86		

\* Computed from graphs published by the authorities indicated.

† Reference given in table 1.

‡ Interpolated.

the test period was long enough to produce fatigue, the subjects apparently obtained some relief from music whereas noise enhanced the fatigue with consequent adverse effect on efficiency.

Pollock and Bartlett<sup>25</sup> found that discontinuous loud mechanical noise was more disturbing than continuous noise of the same type, disturbance was not simply a function of loudness, for "soft" phonograph recordings proved almost as distracting, especially if the subject matter reproduced was "interesting." These investigators concluded that "noise in general tends to produce slight and readily recoverable diminution of efficiency."

In a German factory where experienced workers assembled temperature regulators, sixty imperfections were found in a group of eighty regulators. The assembly room was next to a boiler shop. When this work was performed in a quiet place, 110 units were assembled in the same time previously required for eighty units and only seven imperfections were found. In a packing room equipped with a noisy ventilating fan, output was increased 12 per cent when the fan was turned off, in spite of the poorer ventilation which existed during that period.<sup>29</sup>

Berry quotes some results furnished by Griswold on the efficiency of piece work employees in the Hartford office of the Aetna Life Insurance Company.<sup>30</sup>

Data for this study were gathered before and after the offices were quieted. The noise level was reduced 14.5 per cent and the average efficiency of workers was increased 8.8 per cent. Errors of typists were reduced 29 per cent, while those of machine operators were reduced 52 per cent. Employee turnover decreased 47 per cent and absenteeism dropped 37.5 per cent.

Dennis,<sup>31</sup> reporting the results of the 1930 New York noise survey, gives the following information: A 12 per cent increase in output of office workers followed a reduction of the noise level from 45 to 35 decibels. A 42 per cent reduction in errors in the telephone room of a telegraph company, with a 3 per cent drop in cost, was effected by a reduction of the noise level from 50 to 35 decibels. Bouhn<sup>32</sup> states that a reduction from 55 to 43 decibels was beneficial to typists but that further reduction showed no advantage. Laird<sup>33</sup> reported in the results of a metabolism experiment at Colgate University that 19 per cent less energy was consumed by typists after noise of about 50 decibels in the experimental room was reduced to 40 decibels (from 50 to 60 per cent reduction in loudness) by the addition of sound absorbing wall panels. Letters were typed 4.3 per cent faster during the "quieted phase" of the experiment. Laird also has found that accuracy in immediate memory for nonsense syllables was increased 15 per cent, and delayed memory increased 8 per cent by reducing a complex noise from 50 to 40 decibels.<sup>34</sup>

Luckiesh,<sup>35</sup> in an experiment with nine subjects performing a standard visual test under constant illumination, first in a quiet and subsequently in a noisy room, has found that noise increases the time required for the performance of the test by approximately 6 per cent and suggests that an even greater effect might be observed if the experiment was conducted in a factory where the noises were of a nonrhythmic character. As early as 1893, Wundt<sup>36</sup> showed that reaction times may be retarded by noise, both with auditory and with visual signals.

4. *Effect of Noise on Intracranial Pressure*—In 1930 Kennedy conducted investigations at Bellevue Hospital in New York to determine the effect of noise on intracranial pressure. Using as his subjects persons who had previously had sections of their skull removed in the treatment of tumors or injuries but were otherwise normal, he was able to produce graphic records of the increased brain pressure occasioned by certain noises. The recording device consisted of a drum containing a partial vacuum placed over the soft or thin section of the skull. A sensitive mechanism transmitted the pressure variations within the cranium to a carbon black recording cylinder. "A sharp loud report produced notable irregular disturbance and a rise in intracranial pressure to four times normal. A second noise caused a second peak in the curve."<sup>37</sup> The sudden noises used in these experiments caused increased pulse rates, increased blood pressure and irregularities in heart rhythm. Landis has shown that the noise of a firecracker produced an increase in the systolic blood pressure of 20 mm in twenty seconds.<sup>38</sup>

31. Dennis E. B. Noise—Its Measurement, Effect and Control. New York State J. Med. 30: 573 (May 15) 1930.  
32. Laird D. A. The Measurement of the Effects of Noise on Working Efficiency. J. Indust. Hyg. 3: 431 (Oct.) 1922.  
33. Luckiesh M. Visual Efficiency in Quiet and in Noise. Elec. World part 1 98: 72 (Sept. 12) 1931.  
34. Wundt W. Physiologische Psychologie vol. II chap. VI 1912 (quoted by J. J. L. and Bartlett).  
35. Kennedy Foster. Fatigue and Noise in Industry. New York State J. Med. 36: 1927 (Dec. 15) 1936.

27. Geiger P. H. and Firestone F. A. The Estimation of Fractional Loudness. J. Acoust. Soc. America 5: 25 (July) 1933.  
28. Obata and others. Effects of Noise upon Human Efficiency. J. Acoust. Soc. America 5: 255 (April) 1934.  
29. Increased Production Resulting from Lessening of Noise. U. S. Monthly Labor Rev. 27: 249 (Aug.) 1928.  
30. Griswold P. B. Bankers' Service Bulletin June 1931, cited by Berry F. E. Cost of Noise. Mechanical Engineering 55: 732 (Nov.) 1935.

**5 Effect of Noise on Digestion**—That noise may seriously affect the normal digestive functions and thus assume a causative role in so-called nervous indigestion is indicated by several lines of evidence. Observations on human beings by Smith and Laird<sup>36</sup> at Colgate University showed that a noise of 60 decibels or above inhibited the normal peristaltic activity of the stomach. A noise of from 80 to 90 decibels caused a decrease of 37 per cent in the number of stomach contractions per minute. Laird<sup>37</sup> found that a noise intensity of 60 decibels or more cut down the secretion of saliva by about 44 per cent and reduced the flow of gastric juices, however, a noise level of 40 decibels reduced the saliva flow only 17 per cent and had no effect on the flow of gastric juices.

**6 Fatigue Due to Noise**—If work must be done in the presence of a distracting noise, one's nervous system probably makes a continuous effort to adapt itself to that disturbance. A more intense mental application is required to focus attention on certain types of work, and eventually nervous or mental fatigue may occur.

The intensity and pitch of noise most likely to produce nervous fatigue is difficult to determine because of individual differences. Even for one individual the limits vary from day to day because sensitivity to noise depends, among other things, on health, muscular fatigue and mental attitude. It has been observed that noise of 50 or more decibels is generally annoying and productive of irritability. Sounds are more apt to be fatiguing if their frequencies are either above or below the range of frequencies normally used for speech.<sup>38</sup> The frequencies of most speech sounds lie between 200 and 6,000 cycles. It appears that pitch or frequency of sound is as important as intensity of sound as a factor in producing mental fatigue.<sup>39</sup> In fact, from the results of experiments at Colgate University on the "annoyance effect" of noise it has been suggested that "a noise of low frequency and high intensity may be less annoying than a high frequency noise of low intensity."<sup>40</sup>

Long continued exposure to annoying or fatiguing sounds may soon lead to a neurasthenic or psychasthenic state. The nervous system has been found to be of a rhythmic nature and as a result it responds more readily to rhythmic than to irregular stimuli. Even though adaptation to a regular or rhythmic sound is possible to the extent that one becomes unaware of that sound, nervous energy is expended in such a process, and it may be expected that long exposure will gradually bring on fatigue. Continuous exposure to irritating noises may lower one's threshold of feeling and thus produce hypersensitivity to noise.

Relaxation in quiet surroundings after working hours may be an important means of preventing chronic ear diseases and fatigue due to noise. As pointed out by the New York Noise Abatement Commission in its report entitled "City Noise," sleepless nights are many times the result of unnecessary or thoughtlessly produced noises. Archambault,<sup>41</sup> commenting on the treat-

ment of insomnia in persons obliged to dwell in congested tenement districts, makes the following statement: "I do not hesitate to prescribe [for these patients] some of the milder sedatives and hypnotics in order to facilitate or procure sleep, being morally convinced that the judicious use of such medication is infinitely less detrimental than the persistent insomnia which exhausts both physical energy and moral stamina."

McKenzie states that "while noise does not induce organic disease, apart from deafness, it does induce a condition of functional weakness or disability, which is manifested in exhaustion more or less severe according to (1) the kind of noise, (2) the normal mental and constitutional makeup of the recipient and (3) the state of health at the time of his exposure. And this state of fatigue, though itself not a disease, opens the door to disease."<sup>42</sup>

#### PREVENTION OF NOISE

Since the ear does not have an external protector similar to the lid that guards the eye against disagreeable stimuli, it is desirable to reduce or eliminate unpleasant and harmful noises through whatever means may prove possible. When air conditioning appliances lead to the closure of windows and doors and at times introduce double windows and doors, extraneous noises may be reduced from 5 to 30 decibels with an average near 10. Depending on the loudness of extraneous noises, these barriers may operate to protect the occupants of air conditioned spaces against as much as 75 per cent of noise, but more often in the general range from 45 to 55 per cent.

In view of the array of evidence earlier presented in this paper tending to establish the harmful effects of noise, it at once becomes apparent that air conditioning apart from any values related to the quality of the air in occupied areas, serves a helpful purpose through interposing barriers against noises of outside origin. The statements just made fulfil the chief purpose of this publication. However, since the scope of this paper embraces a general discussion of noise, casual comment is now made on other aspects of the elimination and avoidance of noise.

In addition to the functions served by air conditioning as a noise abater, the eradication or reduction of noise may be accomplished through measures falling into three general categories: (1) elimination of noise at its source, (2) reduction of noise by altering the surroundings and (3) personal protection against noise.

**1 Elimination of Noise at Its Source**—Much noise is unnecessarily produced by the needless sounding of automobile horns, the operation of loud radios, the harboring of noisy animals, and so on. Manifestly, this type of noise can be eliminated only through regulatory and educative procedures. Referring now to noises of more nearly pardonable character, such as those in industry, it is maintained that elimination at the source is the most satisfactory method, although it may be expensive and difficult, requiring special initial experimentation and innovation. However, over a period of several years, the cost of this method may be less than either of the other two procedures. The noise in machinery is often the result of faulty design and worn parts, redesign or repair of such equipment may result in greater life, less loss of power and consequently lower operating cost. Silent operation may be accomplished by the use of well balanced parts to

<sup>36</sup> Smith E. L. and Laird D. A. The Loudness of Auditory Stimuli Which Affect Stomach Contractions in Healthy Human Beings. *J. Acoust. Soc. America* 2: 94 (July) 1930.

<sup>37</sup> Laird D. A. Experiments on the Influence of Noise upon Digestion and the Counteracting Effects of Various Food Agencies. *N. J. Rec.* 135: 461 (May 15) 1932.

<sup>38</sup> Kaye G. W. C. Noise and Its Measurement. *Nature* 128: 253 (Aug. 15) 1931. Dennis J.

<sup>39</sup> Spooner H. J. Health Problems Involved in Noise and Fatigue. *Nation's Health* 1: 91 (Feb.) 156 (March) 1922. Thompson T.

<sup>40</sup> Laird D. A. and Cove K. Psychological Measurements of Annoyance as Related to Pitch and Loudness. *J. Acoust. Soc. America* 1: 156 (Oct.) 1929.

<sup>41</sup> Archambault LaSalle. The Effect of Noise on the Nervous System. *New York State J. Med.* 32: 1110 (Oct. 1) 1932.

<sup>42</sup> McKenzie Dan. Noise and Health. *Brit. M. J.* 2: 636 (Oct. 6) 1934.



reduce the tendency to vibration, by keeping the machinery well lubricated by isolation of machinery in sound proof rooms, and by the use of flexible cushioning supports

As an example, to avoid the noise and vibration of a pneumatic riveter, pressure riveting may be substituted for impact riveting, the automobile industry has successfully applied pressure riveting to the assembly of certain units of steel bodies and frames. Another solution is the use of welding in place of riveting, and at the present time the steel skeletons of many buildings and other structures are welded instead of riveted.

**2 Reduction of Noise by Altering the Surroundings**—Distinct from the noise lessening effects of air conditioning noise entering occupied areas from extraneous sources may in some measure be controlled through the use of sound absorptive material in or on walls, ceilings and floors. Ordinarily the reduction of the noise level by these measures is on the order of 5 to 10 decibels, which, depending on the character of the noise otherwise present, may mean a reduction in the general range of from 30 to 50 per cent. Radio broadcasting studios have found it possible and practical to eliminate as much as 80 per cent of both interior and exterior noise. Many modern offices are made noisy by the use of endless typewriting, duplicating, accounting and addressing machines, along with the general din of conversation. The elimination of such noise should be controlled at the source through the use of "silent" or noiseless office equipment. That which cannot be so eliminated may be minimized through proper architectural devices.<sup>43</sup>

**3 Personal Protection Against Noise**—Many writers have described methods of personal protection against noise and vibration, as, for example, the use of wax, petroleum impregnated cotton, or soft rubber ear defenders against air-conducted noise, and the wearing of soft soled shoes for protection against floor or ground vibrations which might be transmitted through the bony structure of the body. Protection further may be promoted by the use of straw, felt or rubber mats, and special chairs or platforms mounted on springs. In hammering operations, the use of benches with springs for supporting the work does much to reduce the vibrations experienced by the workman at each blow. Faithful wearing of ear plugs undoubtedly serves some purpose in protecting against air-borne vibrations, but in some instances aural dermatitis may be produced by these appliances. Naturally, such devices serve no useful purpose in protecting against bone-conducted vibration by which there is some proof that greater damage may be produced.

#### COMMENT AND SUMMARY

This committee recognizes that proper air conditioning is one factor tending to diminish the ill effects of noise of some types. The procurement of closed windows, doors and other sound barriers commonly associated with artificial climates in public buildings, office buildings, department stores, theaters and so on may eliminate as much as 75 per cent of the noises of extraneous origin.

In industry, air conditioning offers little promise of protection against noise for workers employed near

the origin of noise. Vibration in ranges below audibility has a prominent role in the production of injuries arbitrarily classed as noise diseases. Although inaudible vibrations may involve occupied areas that may be air conditioned, obviously no protection can be secured from such vibrations by air conditioning.

The compilation of material making up this report presents extensive evidence that genuine injury is wide spread as a result of noise action and that noise deafness is the chief of these dysfunctions in terms of both frequency and severity.

## Council on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED  
FRANKLIN C. BING, SECRETARY

#### GLORY WHEAT BREAKFAST CEREAL

**Manufacturer**—The Teichgraber Milling Company, Gypsum Kan.

**Description**—Wheat cereal product containing the embryo and a considerable amount of the bran.

**Manufacture**—Selected winter wheat is cleaned, scoured, tempered with 3 per cent of water for twelve hours and milled. The breakfast cereal is obtained by selection of the most uniform granulation "germ middlings." Care is used to keep the product uniform in bran particles. The cereal is heat treated for fifteen minutes at 77° C. to destroy insect infestation, screened and automatically packaged and weighed.

**Analysis** (submitted by manufacturer)—Moisture 10.8%, total solids 89.2%, ash 1.4%, fat (ether extract) 2.3%, protein (N × 5.7) 14.0%, crude fiber 1.2%, carbohydrates other than crude fiber (by difference) 70.3%.

**Calories**—3.58 per gram, 102 per ounce.

#### MORNING DEW BRAND CORN MEAL MUSH

**Manufacturer**—Streator Canning Company, Streator, Ill.

**Description**—Canned mush made from whole kernel yellow corn, degerminated yellow corn meal, salt and water.

**Manufacture**—The ground yellow corn, degerminated yellow corn meal, water and salt are mixed and heated to 82° C. by live steam. The mush is mechanically filled into cans, which are sealed and processed at 121° C. for eighty-two minutes.

**Analysis** (submitted by manufacturer)—Moisture 83.6%, total solids 16.3%, ash 0.7%, fat (ether extract) 0.1%, protein (N × 6.24) 1.8%, crude fiber 0.4%, carbohydrates other than crude fiber (by difference) 13.4%.

**Calories**—0.62 per gram, 18 per ounce.

- (1) DOVE BRAND EVAPORATED MILK
- (2) GEHL'S BRAND EVAPORATED MILK
- (3) PURITY BRAND EVAPORATED MILK

**Manufacturer**—Badger Milk Products Company, Milwaukee, also known as Gehl's Guernsey Farms, Inc.

**Description**—Unsweetened sterilized evaporated milk.

**Manufacture**—Milk from company and government inspected farms is tested, preheated, evaporated under vacuum, homogenized, cooled, standardized to meet government requirements for butter fat and total solids, filled into cans, sealed and sterilized.

**Analysis** (submitted by manufacturer)—Moisture 74.3%, total solids 25.7%, ash 1.7%, fat (ether extract) 7.6%, protein (N × 6.38) 6.6%, lactose (by difference) 9.6%.

**Calories**—1.4 per gram, 40 per ounce.

<sup>43</sup> Baganel H. and Barnett P. W. The Reduction of Noise in Buildings. Recommendations to Architect. British Department of Science and Industrial Research. Building Research Bull. 14. London His Majesty's Stationery Office. 1933.

# THE SAN FRANCISCO SESSION

AMERICAN MEDICAL ASSOCIATION, EIGHTY-NINTH ANNUAL SESSION  
SAN FRANCISCO, CALIF., JUNE 13-17, 1938

## OFFICIAL CALL

### TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The eighty-ninth annual session of the American Medical Association will be held in San Francisco, June 13-17, 1938  
The House of Delegates will convene at 10 a. m., Monday, June 13. In the House the representation of the various constituent associations for 1938, 1939 and 1940 is as follows:

Alabama	2	New Hampshire	1
Arizona	1	New Jersey	4
Arkansas	2	New Mexico	1
California	7	New York	19
Colorado	2	North Carolina	2
Connecticut	2	North Dakota	1
Delaware	1	Ohio	1
District of Columbia	1	Oklahoma	2
Florida	2	Oregon	1
Georgia	3	Pennsylvania	11
Idaho	1	Rhode Island	1
Illinois	9	South Carolina	2
Indiana	4	South Dakota	1
Iowa	2	Tennessee	3
Kansas	2	Texas	6
Kentucky	3	Utah	1
Louisiana	2	Vermont	1
Maine	1	Virginia	3
Maryland	2	Washington	2
Massachusetts	7	West Virginia	2
Michigan	5	Wisconsin	3
Minnesota	3	Wyoming	1
Mississippi	2	Alaska	1
Missouri	4	Hawaii	1
Montana	1	Isthmian Canal Zone	1
Nebraska	2	Philippine Islands	2
Nevada	1	Puerto Rico	1

The fifteen scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The Scientific Assembly of the Association will open with the general meeting to be held at 8 p. m., Tuesday, June 14. The sections will meet Wednesday, Thursday and Friday, June 15, 16 and 17, as follows:

CONVENING AT 9 A. M. THE SECTIONS ON	
Surgery, General and Abdominal	Nervous and Mental Diseases
Ophthalmology	Dermatology and Syphilology
Pediatrics	Gastro-Enterology and Proctology
Pharmacology and Therapeutics	Radiology
CONVENING AT 2 P. M. THE SECTIONS ON	
Practice of Medicine	Pathology and Physiology
Obstetrics and Gynecology	Preventive and Industrial
Laryngology, Otology and Rhinology	Medicine and Public Health
	Urology
	Orthopedic Surgery

The Registration Department will be open from 8-30 a. m. until 5-30 p. m., Monday, Tuesday, Wednesday and Thursday, June 13, 14, 15 and 16, and from 8-30 a. m. to 12 noon, Friday, June 17.

J. H. J. UPHAM, President.  
NATHAN B. VAN ETEN, Speaker, House of Delegates  
OLIN WEST, Secretary

### MEMBERS OF THE HOUSE OF DELEGATES A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete as a number of the state associations are yet to hold their meetings at which delegates will be elected. The following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included.

#### STATE DELEGATES

<b>ALABAMA</b> J. N. Baker, Montgomery A. A. Walker, Birmingham	<b>MAINE</b> William A. Ellingwood, Rockland
<b>ARIZONA</b>	<b>MARYLAND</b> Harvey B. Stone, Baltimore Alfred T. Gundry, Catonsville
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<b>CONNECTICUT</b> Walter R. Steiner, Hartford George Blumer, New Haven	<b>MISSISSIPPI</b> Felix J. Underwood, Jackson Harvey F. Garrison, Jackson
<b>DELAWARE</b> William H. Speer, Wilmington	<b>MISSOURI</b> Carl F. Voss, St. Louis James R. McVay, Kansas City
<b>DISTRICT OF COLUMBIA</b> Henry C. Macatee, Washington	<b>MONTANA</b> J. H. Irwin, Great Falls
<b>FLORIDA</b> Meredith Mallory, Orlando	<b>NEBRASKA</b> R. W. Fouts, Omaha Karl S. J. Hohlen, Lincoln
<b>GEORGIA</b> William H. Myers, Savannah Charles W. Roberts, Atlanta Olin H. Weaver, Macon	<b>NEVADA</b> Horace J. Brown, Reno
<b>IDAHO</b> E. N. Roberts, Pocatello	<b>NEW HAMPSHIRE</b> Deering G. Smith, Nashua
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<b>INDIANA</b> H. G. Hamer, Indianapolis F. M. Shanklin, Hammond Don I. Cameron, Fort Wayne F. S. Crockett, LaFayette	<b>NEW MEXICO</b> H. A. Miller, Clovis
<b>IOWA</b> Fred Moore, Des Moines	<b>NEW YORK</b> Florence S. Winlow, Rochester William D. Johnson, Batavia Thomas P. Farmer, Syracuse Edward R. Cunningham, New York Grant C. Madill, Ogdensburg Thomas H. Cunningham, Glens Falls
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<b>KENTUCKY</b> A. T. McCormack, Louisville E. L. Henderon, Louisville Virgil E. Simpson, Louisville	
<b>LOUISIANA</b> W. H. Seemann, New Orleans James Q. Grave, Monroe	

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James H Borrell Buffalo  
Terry M Townsend New York  
George W Kosmick New York  
Samuel J Kopetzky New York  
Frederic E Sondern New York  
James M Flynn Rochester  
Thomas A McGoldrick Brooklyn  
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George M Fisher Utica  
Peter Irving New York  
Carl Boettiger Flushing  
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W L Stevens Asheville

## NORTH DAKOTA

A P Nachtwey Dickinson

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C W Waggoner Toledo

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Horace Reed Oklahoma City

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Howard C Frontz Huntingdon  
J Newton Hunsberger Norristown  
J Allen Jackson Danville  
Frank P Lytle Birdsboro  
Curtis C Meehling Pittsburgh  
Charles G Strickland Erie  
Walter T Donaldson Pittsburgh

## RHODE ISLAND

Guy W Wells Providence

## SOUTH CAROLINA

Edgar A Hines Seneca

## SOUTH DAKOTA

J R Westaby Madison

## TENNESSEE

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## VERMONT

B F Cook Rutland

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Walter B Martin Norfolk  
J C Flippin Charlottesville

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J H O Shea Spokane

## WEST VIRGINIA

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Ivan Lawcett Wheeling

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Gunnar Gundersen La Crosse  
Joseph T Smith Wausau

## WYOMING

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## HAWAII

F J Pinkerton Honolulu

## ISTHMIAN CANAL ZONE

Lewis B Bates Ancon

## PHILIPPINE ISLANDS

Frederick W Meyer Cagay

## PUERTO RICO

J H Font San Juan

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## PRACTICE OF MEDICINE

J E Paulin Atlanta Ga

SURGERY GENERAL AND  
ABDOMINAL

Fred W Rankin Lexington Ky

OBSTETRICS AND GYNE  
COLOGY

George Gray Ward New York

## OPHTHALMOLOGY

Arthur J Bedell Albany N Y

LARYNGOLOGY OTOTOLOGY  
AND RHINOLOGY

Burt R Shurly Detroit

## PEDIATRICS

William Weston Columbia S C

PHARMACOLOGY AND  
THERAPEUTICS

Chauncey D Leake San Francisco

PATHOLOGY AND  
PHYSIOLOGY

J J Moore Chicago

NERVOUS AND MENTAL  
DISEASES

T B Throckmorton Des Moines  
Iowa

DERMATOLOGY AND  
SYPHILOLOGY

Clyde L Cummer Cleveland

PREVENTIVE AND INDUS  
TRIAL MEDICINE AND  
PUBLIC HEALTH

Stanley H Osborn Hartford  
Conn

## UROLOGY

H C Bumpus Pasadena Calif

## ORTHOPEDIC SURGERY

Roland Hammond Providence R I

GASTROENTEROLOGY AND  
PROCTOLOGY

Curtice Rosser Dallas Texas

## RADIOLOGY

F H Skinner Kansas City Mo

## UNITED STATES ARMY

Roger Brooke San Francisco

## UNITED STATES NAVY

UNITED STATES PUBLIC  
HEALTH SERVICE

Warren F Draper Washington  
D C

## OFFICERS OF THE AMERICAN MEDICAL ASSOCIATION, 1937-1938

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laro New York 1942 Olin West ex officio  
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Director Chicago

CHEMICAL LABORATORY—Paul J L  
Director Chicago

LIBRARY—Margaret Hutchins Moore Librarian  
Chicago

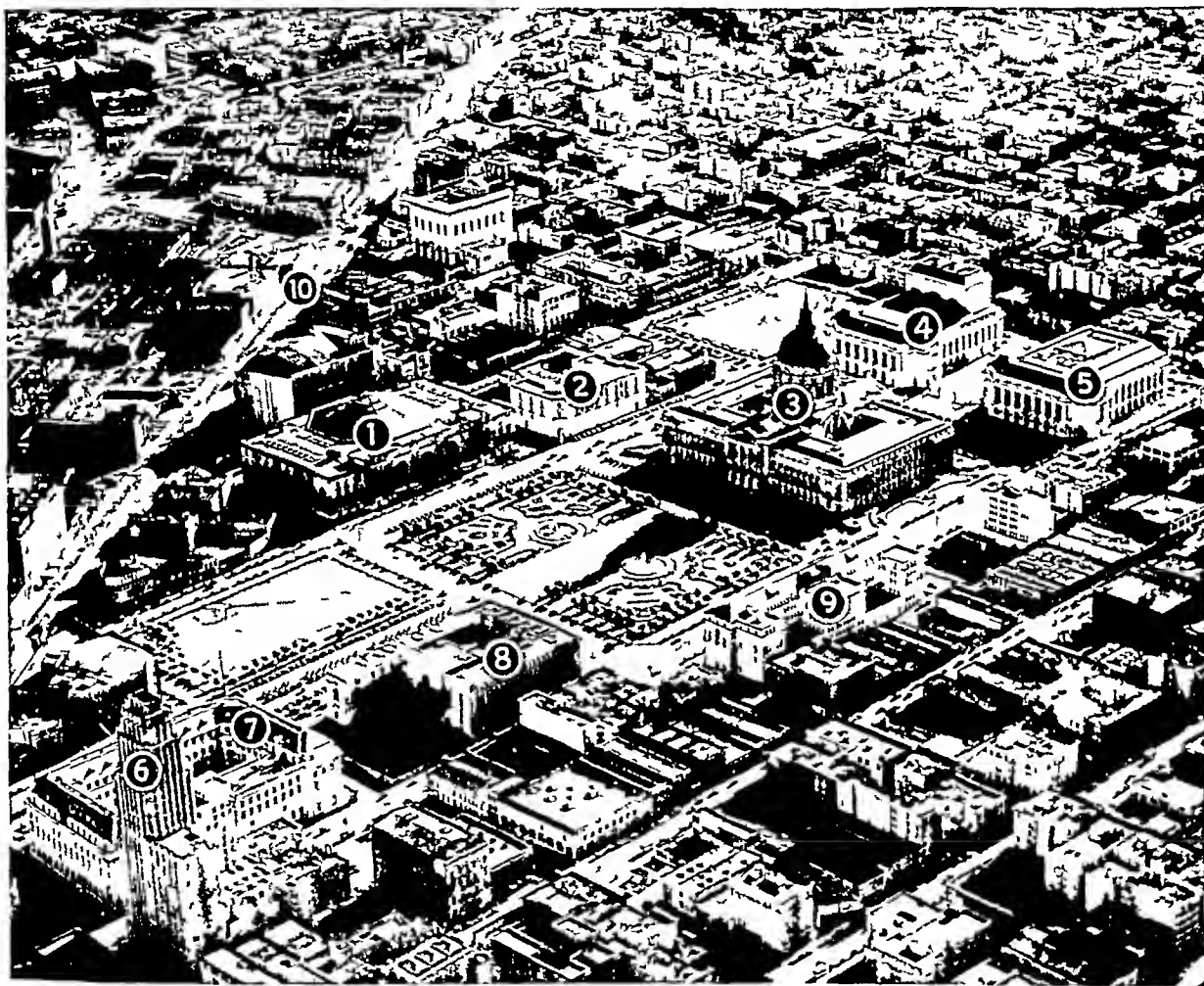
## SAN FRANCISCO 1938—CALIFORNIA INVITES YOU

*It lies not East or West  
But like a scroll unfurled  
Here the hand of God hath hung it,  
Down the middle of the world*

A coast line of more than 1 000 miles 157 000 square miles in area, 6 500 000 people, balmy semitropical climate and snow-clad mountains, fertile valleys, forest lands and state and national parks, ocean shore resorts and inland vacation grounds—all of nature's resources essential to man's comfort happiness, business and pursuit of avocation—that is California

San Francisco 475 square miles in area is located on a peninsula with the Pacific ocean on the west and the bay on the north and east forming the largest inland harbor in the world The San Francisco Oakland Bay Bridge and the Golden Gate Bridge acknowledged engineering feats, have recently provided avenues of quicker access to the mainland, displacing the famed ferries of former days

In the heart of the city within walking distance of the leading hotels, is the Civic Center, bounded by Van Ness Fulton, Hyde and McAllister streets—four by two city blocks in area Here are located the Civic Auditorium Memorial Opera House,



AIR VIEW OF SAN FRANCISCO'S CIVIC CENTER AND ENVIRONS

- |                            |                     |                        |
|----------------------------|---------------------|------------------------|
| 1 AUDITORIUM               | 5 VETERANS BUILDING | 8 LIBRARY              |
| 2 BOARD OF HEALTH BUILDING | 6 EMPIRE HOTEL      | 9 STATE BUILDING       |
| 3 CITY HALL                | 7 FEDERAL BUILDING  | 10 SOUTH MARKET STREET |
| 4 OPERA HOUSE              |                     |                        |

### SAN FRANCISCO

Historians poets and artists have vied in their descriptions of San Francisco but the city itself surpasses description In June San Francisco's maximum and minimum temperature is from 67 to 50 degrees The days are usually bright and sunny the nights cool with no rain and a minimum of fog in the early morning The visitor will do well to have a light top coat for weather emergencies

Veterans Memorial Building City Hall City Health and Public Library buildings and State and Federal buildings In the auditoriums of these buildings all the meetings and exhibits will be held

The visitor to San Francisco cannot obtain the full savor of the city without having enjoyed the hospitality and comforts of its fifty-four first class hotels and three hundred famed restaurants For this session the local committee has under reservation by contract five thousand rooms in first class

hotels, with additional accommodations available should the attendance registration demand

Golden Gate Park, with 1,013 acres in the heart of the city, provides scenic beauty, trees, flowers, a polo field, playgrounds, a museum a zoo, a tea garden a bandstand, ball and rugby fields, bridle paths, lakes, fountains and statues. The famed harbor of San Francisco Bay is seventy miles long and from four to ten miles wide, connected with the Pacific only by the Golden Gate, a strait a mile across its narrowest point.

The hills of San Francisco give to the city its picturesque effect. Of these hills, Telegraph, Russian, Nob Hill and Twin Peaks are the more important. Each has its own particular and attractive views.

At the Presidio, the headquarters of the corps area, the federal troops are stationed. Here also is one of the army's

than a combination of Eastern states, are centered in the association headquarters at 450 Sutter Street, San Francisco.

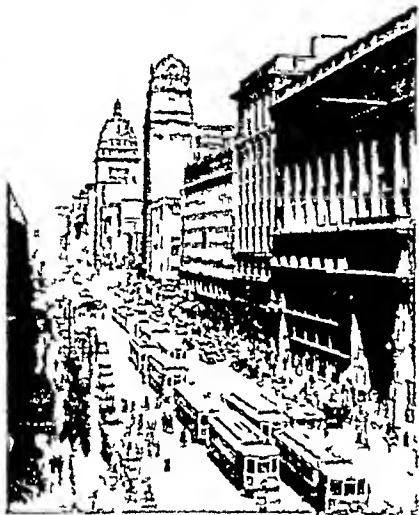
Historical records show that organization of the San Francisco County Medical Society was "unsuccessfully attempted on June 22, 1850, being preceded by the successful formation in Sacramento of a medical society in May of 1850 and by a more or less inconsequential group in Los Angeles in January 1850. In San Francisco on Nov. 17, 1853, a county medical society was eventually formed, sixty-three members enrolling."

The San Francisco County Medico-Chirurgical Association was mentioned in the first volume of the *Medical Press* which reported that "this society was organized in August 1885. Though its proceedings have been marred by considerable discord, it has still done much in the cause of the profession. This association is and always has been the only working

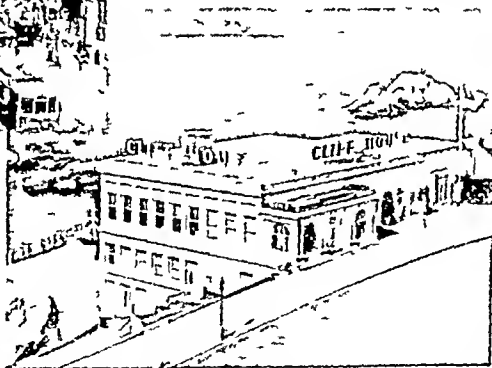
Right—ST MARY'S CHURCH ON EDGE OF CHINATOWN



## Views About San Francisco



A VIEW OF MARKET STREET



THE CLIFF HOUSE A FAVORITE DINING PLACE  
FAMOUS SEAL ROCKS AND PACIFIC OCEAN



THE FISHERMAN'S WHARF

largest hospitals the Letterman General Hospital. Situated along the bay and the Golden Gate a drive through this army post with its tree-lined drives officers' homes hospital parade grounds cemetery and administration buildings never fails to evoke expressions of delight and admiration. Beyond the Presidio toward the sea is the great coast artillery post Fort Winfield Scott defending the entrance to San Francisco Bay.

Fisherman's Wharf, the Embarcadero Chinatown Yacht Harbor Funston Field and the Court of Honor comprise additional points of interest.

### MEDICAL CENTERS

The California Medical Association with more than 6100 member representing 85.5 per cent of the state's licensed resident physicians is the fourth unit in size in the federation of medicine. Its thirty-nine county units some of them larger

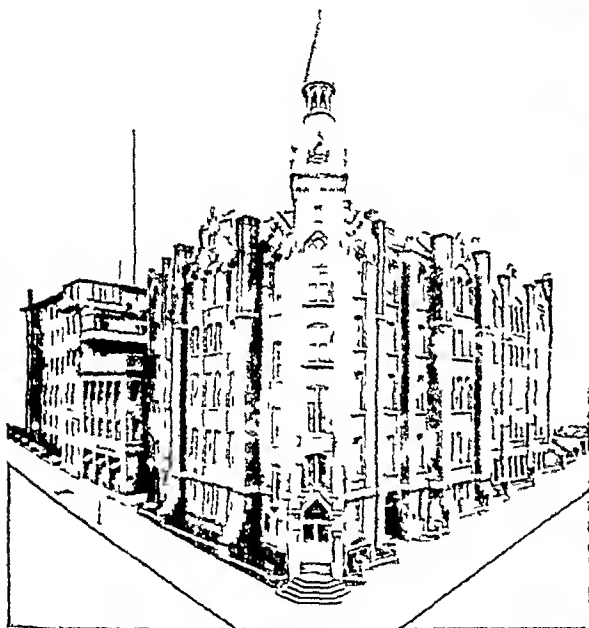
medical society in this city. This second reference seems to justify the inference that two medical societies were active in San Francisco during the early days. This supposition receives support from editorial comments.

San Francisco Medical Society—This we believe was the first medical society formed in this city. It has however only been a society in name for the most part. During the presidency of Prof. Henry Gibbons however it was brought into a state of considerable usefulness. Quite a number of very interesting meetings were held with animated discussions upon medical subjects during the year. It has generally been controlled by medical gentlemen who appeared to think their highest duties were performed when they succeeded in carrying the general elections through satisfactorily and had the officers duly announced in all our daily papers.



At first meetings of the San Francisco County Medical Society were held in various halls about the downtown district. After the earthquake and fire of 1906, quarters were rented in the Butler Building at the corner of Stockton and Geary streets, and in 1918 the society moved to the Medical Building, at the corner of Bush and Hyde streets. From the earliest records one finds constant expression of the wish to own its own home. In 1926, largely through the efforts of the late Reginald Knight Smith, the present home was purchased. It was formerly a private residence and is unquestionably the finest building of its type in San Francisco. In spite of the fact that no alterations have been made in the building, it is admirably suited to the needs of the medical society for the holding of its meetings, for its administration headquarters and for the housing of its splendid library.

One of the achievements of the Alameda County Medical Association during the past year has been the growth of its Insurance Association of Approved Hospitals. The following facts are based on figures as of Dec 1, 1937. There are approximately 9,000 members and 454 claims filed amounting



STANFORD UNIVERSITY SCHOOL OF MEDICINE  
SAN FRANCISCO

to \$29,106.42 during the past year. The average hospital stay is 7.78 days and the average cost per day is \$8.15. The inclusion of San Francisco, Contra Costa and San Mateo counties has played an important part in the year's growth. The hospitals under contract with this association include:

Alameda County: Peralta, Alta Bates, Providence, East Oakland, Berkeley General, Samuel Merritt and Alameda Sanitarium.

Contra Costa: Antioch, Concord, Martinez and Richmond Cottage.

San Francisco: Children's, Green & Eve, Mary's Help, Mount Zion, St. Joseph's, St. Luke's, St. Mary's, Stanford and University of California.

San Mateo: Mills Memorial.

The Alameda County Medical Association part pay plan continues to function efficiently with 100 per cent cooperation from the members. Sponsored by the antituberculosis association of this county, material for tuberculin tests is available to any physician requesting it.

Clinic activities at the various hospitals include an obstetric clinic at Providence, a general pediatric clinic at Children's and a general clinic at the Berkeley General and a cancer clinic and dermatology clinic at Alameda County Hospital. There is keen interest on the part of the members in these various clinics.

During the past year regular monthly meetings of the Alameda County Medical Association have been held and well balanced programs have been presented. Subjects of interest to the greater majority were selected. Officers and members of

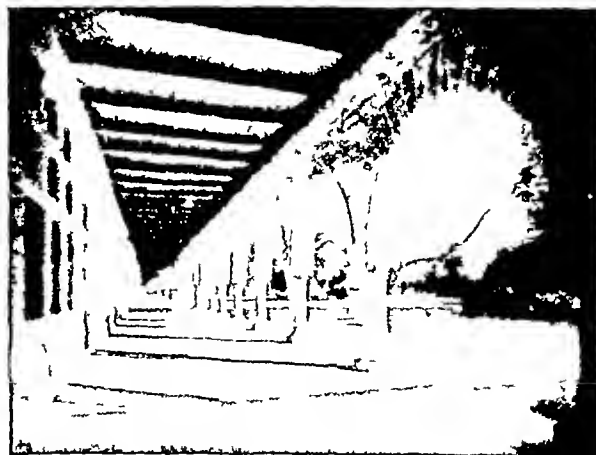


SAN FRANCISCO SKYLINE AND THE FERRY  
BUILDING

the council entertained Dr. Olin West, Secretary of the American Medical Association, and on another occasion the director of the Bureau of Medical Economics of the American Medical Association was our guest.

The first annual hobby show was presented by some of our talented members and gave pleasure to all who attended. The beautiful work produced in such varied fields was surprising.

The publicity committee of the association is becoming more active and efficient. The cooperation between the newspapers,



STANFORD UNIVERSITY QUADRANGLE PALO ALTO

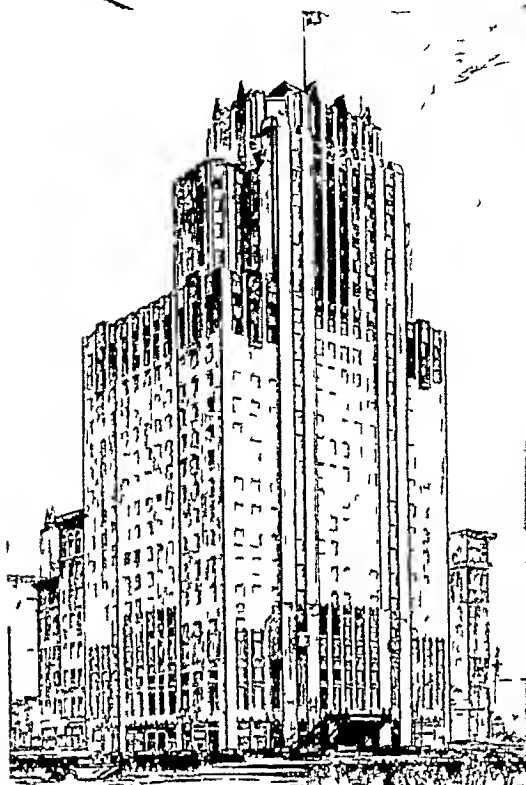
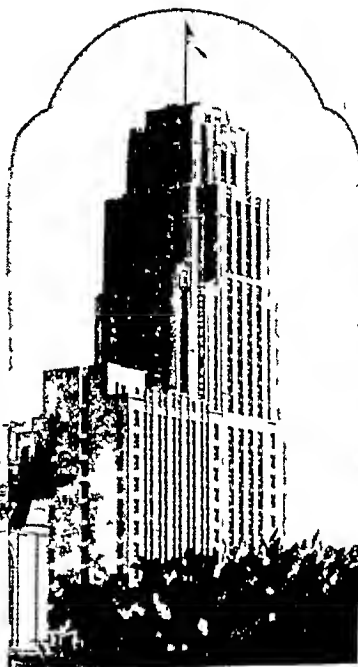
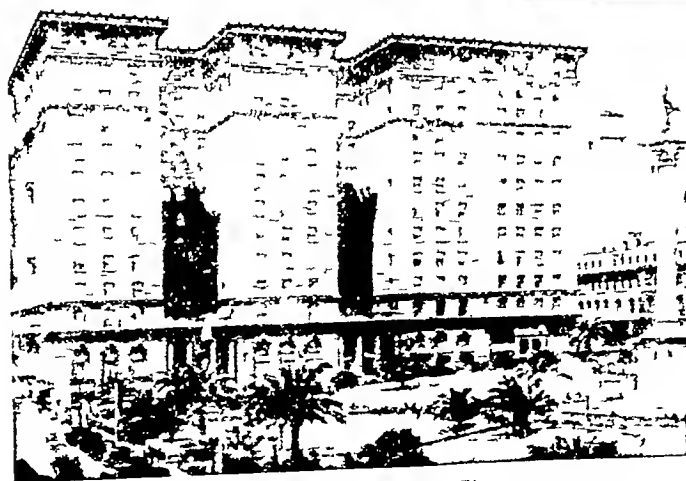
doctors and hospitals is evidence that such friendly cooperation will provide more accurate medical information and will tend to lessen the amount of misinformation published. Such censorship of reports will be of great benefit to both medical practitioners and the public.

The Alameda County Medical Association has cooperated to the fullest degree with the other medical organizations in the state in furthering the understanding of the significance of the aims of scientific medicine for the benefit of the body politic.

## San Francisco Hotels



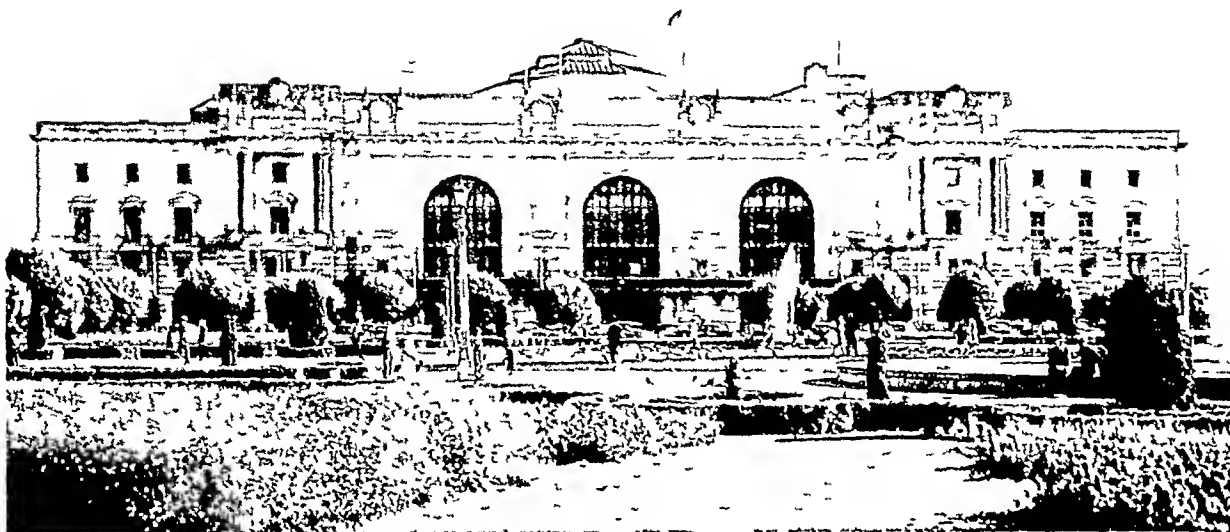
PALACE HOTEL

HOTEL SIR FRANCIS ORAKE  
WHERE THE HOUSE OF DELEGATES  
WILL MEETAbove—ORAKE WILTSHIRE HOTEL  
Left—HOTEL EMPIRE

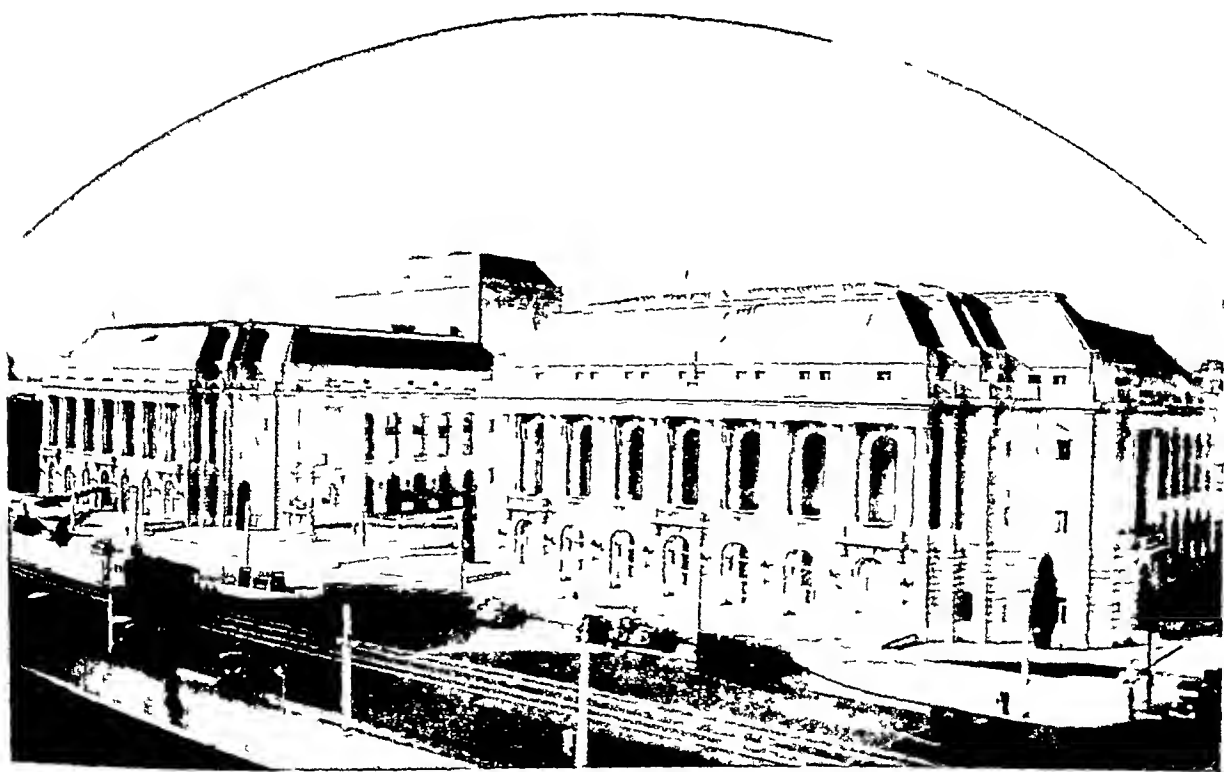
THE ST FRANCIS HOTEL



HOTEL BELLEVUE



CIVIC AUDITORIUM—REGISTRATION AND THE EXHIBITS WILL BE HELD HERE



MEMORIAL OPERA HOUSE (left) AND VETERANS BUILDING

In addition to these San Jose, at the south end of the bay fifty miles from San Francisco, Contra Costa, Vallejo and Marin compose the Bay area county medical organizations.

#### MEDICAL COLLEGES

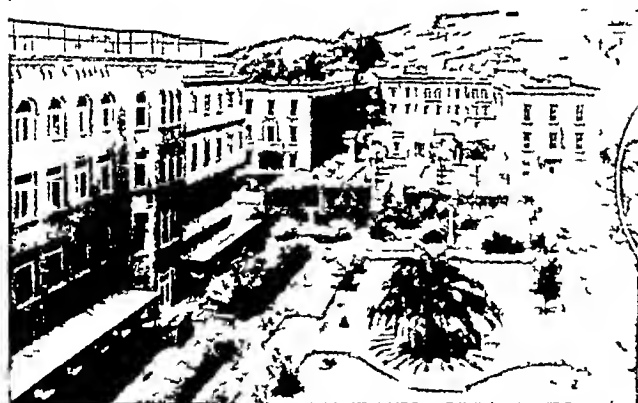
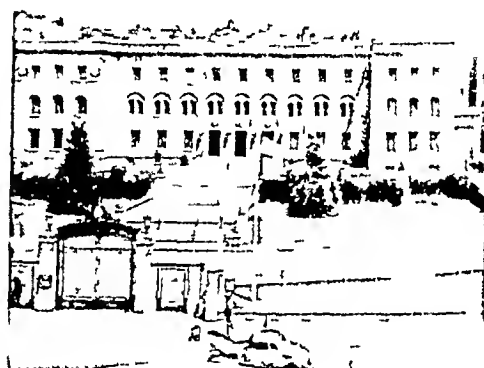
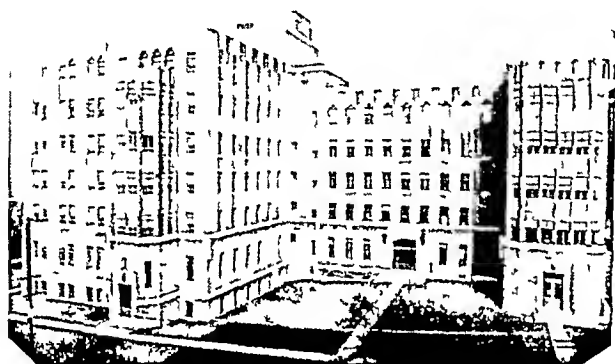
Toland Medical College established in 1862, was absorbed by the University of California in 1872 and became its medical school. In 1898 buildings were erected on the San Francisco campus of the university, from which the present Medical Center has developed. All the divisions of the medical school, except those of the first year, are housed at the Medical Center. The University Hospital of 300 beds and the outpatient department with 185,000 annual visits are conducted as clinical teaching

cine, Obstetrics and Gynecology, Pathology, Pediatrics, Pharmacology and Therapeutics, Physiology, Public Health and Preventive Medicine, and Surgery. The first four trimesters of undergraduate teaching are done at the university campus and the remainder of the teaching is done at Stanford University School of Medicine, Sacramento and Webster streets, San Francisco. The medical school owns and controls Lane Hospital and Stanford University Hospital, and the university owns and controls Lane Medical Library, which is one of the foremost medical libraries of this country, containing more than eighty-six thousand volumes. The medical school accepts only sixty students in each of its classes and requires a one year internship before awarding the degree of doctor of medicine. The medical

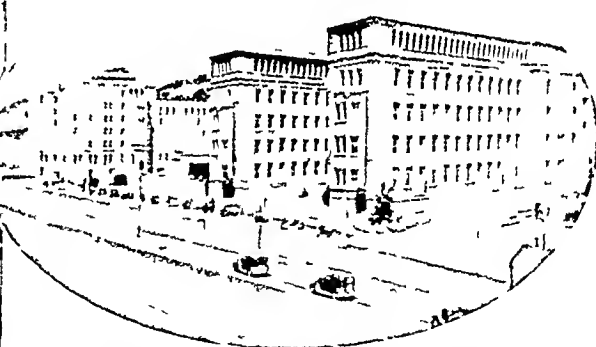
## The San Francisco Hospital

Below Left—MATERNITY BUILDING  
Right—PSYCHOPATHIC BUILDING

Below MAIN ENTRANCE ADMINISTRATION BUILDING



Above TUBERCULOSIS BUILDING (left) AND ISOLATION BUILDING



Above PSYCHOPATHIC BUILDING (left) AND BUILDINGS NO. 1 AND NO. 2 MEN'S WARDS

activities. The first year departments of anatomy, physiology and biochemistry are in the Life Sciences Building on the Berkeley campus of the university. Besides the Medical School, the Medical Center, a sixteen-acre tract of land includes the Colleges of Dentistry and Pharmacy, the Training School for Nurses and the George Williams Hooper Foundation, which is actively engaged in medical research. The clinics of the College of Dentistry are closely coordinated with those of the medical outpatient department.

Stanford University School of Medicine came into being in 1908 when all the properties and equipment of the Cooper Medical College founded in 1882 were transferred to Stanford University. The medical school is an integral part of Stanford University and has the following eleven departments: Anatomy, Bacteriology and Experimental Pathology, Chemistry, Medi-

cine, Obstetrics and Gynecology, Pathology, Pediatrics, Pharmacology and Therapeutics, Physiology, Public Health and Preventive Medicine, and Surgery. The medical school directs an outpatient clinic which receives in the neighborhood of 100,000 patient visits annually. The medical school is financed entirely by Stanford University endowment fund and private donations.

#### SAN FRANCISCO HOSPITAL

The San Francisco Hospital, an institution within the department of public health of the city and county of San Francisco and deriving its funds for operation from the public treasury, is limited to accepting only those patients who are unable to provide for their own care in a private hospital.

It is a general hospital with a capacity of 1,400 bed-officers in addition to general medical and surgical services, a tuber-

culosis division, an isolation division for the care of the communicable diseases and a new psychopathic unit. As adjuncts, city physicians, giving care in the home to those who cannot afford to have the services of a privately practicing physician are on call through the Social Service Division, and an outpatient obstetric service is given to expectant mothers in their homes when they too cannot have private medical care. Although a follow-up care for discharged patients is given no general outpatient care is provided. The two university medical schools give the city and county of San Francisco invaluable service, in that members of the faculties of these educational centers serve as visiting staff members.

The visiting staff consists of 150 physicians and surgeons appointed by the director of public health from the medical teaching staffs of the University of California Medical School and Stanford University Medical School.

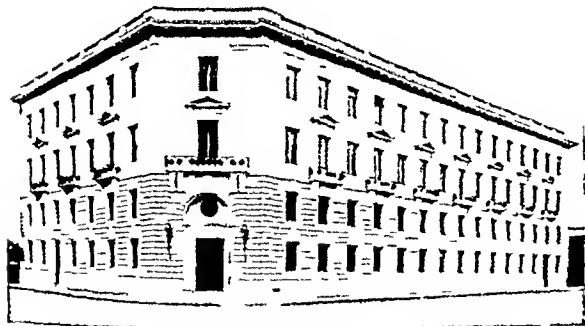
#### THE EMERGENCY HOSPITALS

The Emergency Hospital Service, so frequently linked with the police department of most large cities, is also a part of the department of public health in San Francisco.

The service includes twenty-four hour service in each of six emergency hospitals located in various parts of the city. Fourteen radio equipped ambulances are operated, each manned with a driver and a trained hospital steward. A surgeon and a nurse working on an eight hour shift, are in constant attendance at the Emergency Hospital. The administrative staff under the director of public health, is the chief surgeon and assistant chief surgeon, one of whom is always on call, and the chief steward. More than 70,000 cases were handled during the past year with 32,000 ambulance calls.

#### THE DEPARTMENT OF PUBLIC HEALTH

In San Francisco the activities of the Department of Public Health include, in addition to those services usually referred to as the strictly preventive and public health functions, the institutional services, comprising the San Francisco Hospital (a general hospital), the Laguna Honda Home (for the aged and infirm), the Hassler Health Home (for the tuberculous) and the Emergency Hospital Service (including ambulance



BOARD OF HEALTH BUILDING CIVIC CENTER

service). This administrative setup has been in effect in San Francisco for many years and was incorporated in the charter of 1900 and the new freeholders charter of 1932.

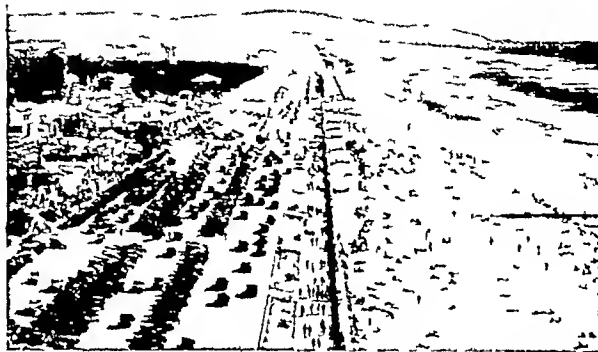
While under the charter of 1900 the department was administered by the board of health through its executive officer, the health officer, the new freeholders charter of 1932 centralizes the responsibility in the director of public health. The Health Advisory Board made up of three physicians, a dentist and three laymen appointed by the chief administrative officer to terms of four years each, has only advisory powers.

Housed since 1932 in a modern building erected for its sole use, the Department of Public Health has a building of which it may well be proud and which is undoubtedly one of the finest in the United States.

#### SUGGESTIONS FOR PERSONAL COMFORT IN CALIFORNIA

1 In San Francisco the temperature in June varies between 50 and 70 degrees. The afternoons and nights are cool. Bring a light spring suit and top coat. Summer suits are not advisable.

2 The June temperature of Los Angeles varies from 70 to 80 degrees with cool nights. Summer clothes add to personal comfort.



THE OCEAN BEACH BELOW CLIFF HOUSE  
SAND DUNES IN DISTANCE

3 Northern California along the coast and redwood highways has a temperature comparable to June in the Middle West or East.

4 On the coast highway south of San Francisco the temperature ranges from ten to twenty degrees higher than in San Francisco.

5 Inland in the Sacramento and San Joaquin valleys the temperature ranges from 70 to 90 degrees, with hot spells during which the temperature reaches from 100 to 110. In the mountain regions and national parks, the days are comfortably warm with cool nights.

6 California's automobile highways are maintained in almost perfect condition. This is especially true of the main trunk lines. They are well posted, and curves and steep grades are well marked. It driving bring your car ownership certificate and driver's license as you will be stopped at the borders and given a special permit without charge. There is a federal government fee of \$2 to enter national parks. This is paid at any entrance roadgate.

7 Sun glasses add to personal comfort.

#### CALIFORNIA

The hurried two to four day tourists' itinerary is entirely too brief to gain a true picture of the state. One will never regret the time spent in a more extended visit to California's points of special interest. The suggestion is advanced that plans be made to travel direct without intervening stops, in order that time may be allotted to visits to San Diego, Los Angeles, the Coast Highway, Santa Barbara, Monterey Bay and Del Monte, the Santa Clara Valley, the Valley of the Moon, Big Basin, Yosemite National Park, Redwood Highway, Marin Island, Oakland, Sacramento Valley and the Sierra resorts. From timberlands with its lakes and streams, fertile valleys, grazing plains, mountainous regions, state parks and playgrounds and sportslands to the metropolitan centers, California affords the tourist and vacationist an ever varying unending opportunity of rest, joy and inspiration. To see to know to appreciate fully, one needs to include these centers in a visit to California.



## TRANSPORTATION

## Railroad Rates to San Francisco

Because of the reduction in one way fares to three cents a mile for travel in sleeping and parlor cars, which closely approximates the former convention fare basis, the use of convention fares has been discontinued in the territories of the Central Passenger, Trunk Line and New England Passenger Associations.

In the territory of the Transcontinental Passenger Association and in that part of the territory of the Western Passenger Association east of and including El Paso, Texas, Albuquerque, N. M. Ogden and Salt Lake City, Utah, and the state of Montana the following round trip fares, for which no certificates of any kind will be necessary, have been authorized from the points named to San Francisco: Chicago, \$90.30, Kansas City, Mo., \$75.60, Memphis, Tenn., \$89.25, Minneapolis, \$90.30, New Orleans, \$89.25, Omaha, \$75.60, St. Louis, \$85.60, St. Paul, \$90.30. These fares include the privilege of going by any authorized route and returning by any other authorized route. They are subject to change without notice.

We have also been informed that the following round trip fares for which no certificate of any kind will be necessary have been authorized from the points named to San Francisco but are subject to change without notice: Washington, D. C., \$130.40, Boston, Mass., \$148.55, Grand Rapids, Mich., \$101, Buffalo, N. Y., \$120.65, Cincinnati, Ohio, \$105.45, Philadelphia, Pa., \$136.10, Norfolk, Va., \$131.10, Birmingham, Ala., \$97.90, Lexington, Ky., \$102.70, Nashville, Tenn., \$96.55, Baltimore, Md., \$130.40, Detroit, Mich., \$106.75, Albany, N. Y., \$137.35, New York, N. Y., \$141.50, Cleveland, Ohio, \$110, Pittsburgh, Pa., \$117.40, Parkersburg, W. Va., \$117.10, Atlanta, Ga., \$104.90, Louisville, Ky., \$99.95.

All members who expect to attend the session are urged to confer with their home ticket agents, who will be able to give them more specific information regarding fares and routes.

## Special Trains to San Francisco With Stop-Overs

De luxe special trains restricted to physicians, their families and friends are available to San Francisco for the annual session, leaving Chicago June 6. There will be stop-overs at Lamy, N. M., for a sightseeing trip through the Indian Pueblo district by motor coach and at the Grand Canyon in Arizona and at Los Angeles then the party will go by steamship to Avalon on Santa Catalina Island, returning to Los Angeles, and on to San Francisco by train, arriving 9 a. m., Monday, June 13. On the return trip east there is a choice of two routes each with stop over sightseeing trips. Returning, route one is through Portland, Seattle, Victoria, Vancouver, Canadian Rockies, Lake Louise and Banff. Route two is by Yellowstone National Park, Salt Lake City, Royal Gorge, Colorado Springs and Denver. By route one the train arrives in Chicago at 4:40 p. m., June 25 and by route two, June 27, at 9:23 a. m. Twenty-five state medical societies have become interested in these special trains for physicians, and a descriptive folder giving additional information about the sightseeing side trips may be had from the secretaries of these state societies or from the American Express Travel Service, 180 North Michigan Avenue, Chicago.

## Chicago Medical Society Special

The Chicago Medical Society Special train will leave Chicago from the Union Station at 9 p. m., Thursday, June 9, arriving in San Francisco at 8:30 a. m., Sunday, June 12. The train will be operated on a fast schedule and no excess fare will be charged. Members of the American Medical Association, their families and friends are cordially invited to join this group. Dr. Frank P. Hammond, 30 North Michigan Avenue, Chicago, is the chairman of the transportation committee of the Chicago Medical Society.

## Golfers' Special

The Golfers' Special will bring you to San Francisco a most pleasant way. This American Medical Golfing Association tour includes an ocean voyage from New York to New Orleans (six days) on the S. S. Dixie sailing June 1. The first game of golf will be played in New Orleans on June 7 followed by five games on excellent courses on the outgoing trip with stops and sightseeing at Houston, Galveston and San Antonio, Texas and Los Angeles including Hollywood and Del Monte Cal.

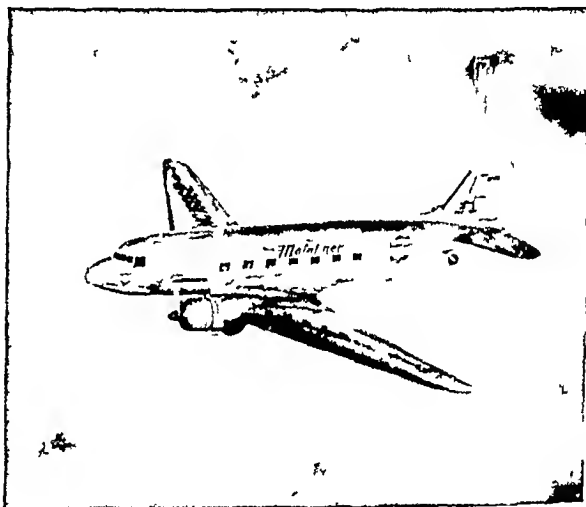
The return journey will be via Portland, Seattle, Vancouver, Lake Louise and Banff, with two additional games of golf, more sight-seeing and a steamship voyage up Puget Sound. Non golfers as well as golfers (and their ladies) are invited.

If you can't spend the time for the ocean voyage from New York, join the Golfers' Special at New Orleans on June 7. If you can't join the Golfers' Special on the trip to San Francisco plan on taking the return journey through the glorious Northwest, including Vancouver, Lake Louise and Banff.

Drop a card for detailed information and rates to Mr. W. J. Burns, Executive Secretary, Michigan State Medical Society, 2020 Olds Tower, Lansing, Mich.

## Automobile Travel

The California State Automobile Association suggests three automobile routes from Chicago to San Francisco, namely, a southern, an overland and a northern route. The southern route leads one through St. Louis, Oklahoma City, Albuquerque and Los Angeles to San Francisco, and a detour may be made to the south rim of the Grand Canyon, the overland route, through Omaha, Cheyenne, Salt Lake City, Reno and Oakland to San Francisco, the northern route through Minneapolis, Fargo, Helena, Spokane, Seattle, Portland and San Rafael to San Francisco, and a detour may be made to Yellowstone National Park.



FLYING TO SAN FRANCISCO

## Air Travel

Plans are being made to provide frequent airplane service between New York, Chicago, Denver and San Francisco at the time of the annual session. California is just a "good night's sleep," from New York, Chicago and other eastern cities because of fast overnight sleeper plane service.

In addition to overnight schedules from coast to coast, passengers may choose convenient scenic daylight flights. For those planning to visit other points on the Pacific Coast either before or after the session there is a border to border service linking Vancouver, Seattle, Tacoma, Portland, San Francisco, Oakland, Los Angeles and San Diego.

In some instances it is possible for passengers, in traveling by plane to San Francisco to go to Los Angeles at no extra cost. Commuter service, with seven flights daily, is operated between San Francisco and Los Angeles, the 330 mile nonstop flight requiring only two hours.

Many California cities have air service, and planes land close to all western vacation lands. Yosemite National Park is but a short distance from Fresno, fishing and hunting grounds are conveniently reached from Medford or Portland and Tacoma and Seattle are gateways to Mount Rainier National Park.

It is suggested that those interested in traveling to San Francisco by airplane consult the agents of the airlines serving their respective territories.

## REGISTRATION

The Bureau of Registration will be located in the Auditorium in Civic Center Grove street, between Polk and Larkin streets. Members of the Subcommittee on Registration of the Local Committee on Arrangements will be on hand to assist those who desire to register. A branch postoffice in charge of government postoffice officials will be available for visitors, and an information bureau will be operated in connection with the Bureau of Registration.

### Who May Register

Only Fellows, Affiliate, Associate and Honorary Fellows and Invited Guests may register and take part in the work of the sections. Fellows of the Scientific Assembly are those who have, on the prescribed form, applied for Fellowship, subscribed to THE JOURNAL, and paid their Fellowship dues for the current year. The annual Fellowship dues provide a subscription to THE JOURNAL for one year. Fellowship cards are sent to all Fellows after payment of annual dues and these cards should be presented at the registration window. Any who have not received cards for 1938 should secure them at once by writing to the American Medical Association, 535 North Dearborn Street, Chicago.

### Members in Good Standing Eligible to Apply for Fellowship in the Association

Members in good standing in component county medical societies are members of constituent state associations and of the American Medical Association. All members in good standing may apply for Fellowship in the Scientific Assembly and are urged to qualify as Fellows before leaving home in order that pocket cards may be secured and brought to San Francisco so that registration can be more easily and more promptly effected.

Application forms may be had on request.

Those subscribers to THE JOURNAL who have not received pocket cards for 1938 should write to the American Medical Association for application blanks and information as to further requirements.

### Register Early

Fellows living in San Francisco, as well as all other Fellows who are in San Francisco on Monday and Tuesday, should register as early as possible. The names of those who register will be included in the issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends if they have registered.

### Suggestions That Will Facilitate Registration

Fellows should fill out completely the spaces on both sections of the front of the white registration card which will be found on the tables in front of the Registration Bureau.

Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the blue registration card and sign the application on the back. These cards will be found on the tables.

Entries on the registration cards should be written plainly or printed as the cards are given to the printer to use as copy for the *Daily Bulletin* published on Tuesday, Wednesday, Thursday and Friday of the week of the session.

Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out white registration card together with their pocket cards at one of the windows marked "Registration by Pocket Card." There the clerk will compare the two cards, stamp the pocket card and return it, and supply the Fellow with a badge, a copy of the official program and other printed matter of interest to those attending the annual session.

As previously stated, it will assist in registering if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago, so that their Fellowship may be entered not later than May 21. Any applications that are received later than May 21 will be given

prompt attention, but the Fellowship pocket card may not reach the applicant in time for him to register at the San Francisco session.

It will be possible for members of the organization to qualify as Fellows at San Francisco. In order to do this, applicants for Fellowship will be required to fill out both sections of the front of the blue registration card and to sign the formal application that is printed on the reverse side of the card. It is suggested that those members who apply for Fellowship at San Francisco bring with them their state membership cards for 1938. The state membership card should be presented along with the filled in blue registration card at the window in the booth marked "Applicants for Fellowship and Invited Guests."



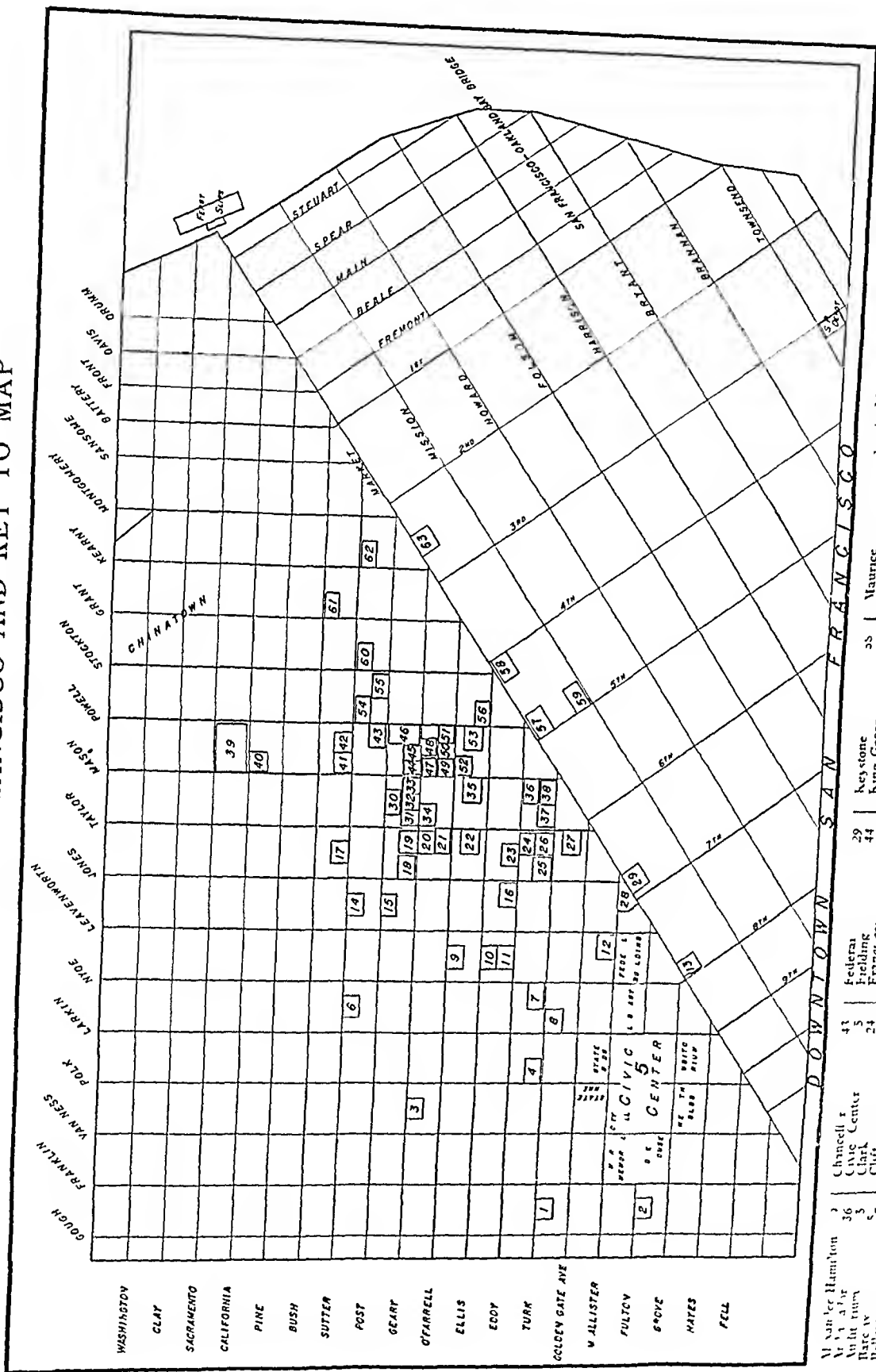
YOSEMITE FALLS ABOUT 187 MILES FROM SAN FRANCISCO—  
THE UPPER FALL ALONE DROPS 1,430 FEET

As already stated, registration can be effected more easily and more promptly if members will qualify as Fellows before leaving home.

### Registration for General Officers and Delegates at the Hotel Sir Francis Drake

General Officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly in the French Room adjacent to the Empire Room of the Hotel Sir Francis Drake. This arrangement is made for the convenience of the members of the House of Delegates which will convene on Monday morning at 10 o'clock in the Empire Room of the Hotel Sir Francis Drake. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock Monday morning, June 13, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House.

MAP OF SAN FRANCISCO AND KEY TO MAP



Washington	36	Chinatown	41	Federal	29	Key Stone	35	Maurice	12	Spaulding	20
Clay	37	Civic Center	42	Fielding	44	King George	47	New Dalt	37	Stewart	48
Sacramento	38	Chit	43	Fraser Can	45	Lankershim	48	Regent	41	Sutter	62
California	39	Complere	44	Gaylor f	18	La Salle	50	St Francis	23	Utter	63
Pine	40	Public Welfare	45	Colum S a	6	Lombard	51	Senator	46	Vanderbilt	32
Bush	41	Harbor	46	Cornor	26	Mane	52	Spaulding	5	W. H. H. H.	49
Sutter	42	Embassy	47	Grall	1	Mark II kin	53	Palace	11	White	54
Post	43	Embassy	48	Herbert	16	Mark Twain	54	Rich. ch	65	White	55
Geary	44	Embassy	49	Herbert	33	Marland	55	Rich. ch	65	White	56
O'Farrell	45	Embassy	50	Herbert	33	Marland	55	Rich. ch	65	White	57
Ellis	46	Embassy	51	Herbert	33	Marland	55	Rich. ch	65	White	58
Eddy	47	Embassy	52	Herbert	33	Marland	55	Rich. ch	65	White	59
Turk	48	Embassy	53	Herbert	33	Marland	55	Rich. ch	65	White	60
Golden Gate Ave	49	Embassy	54	Herbert	33	Marland	55	Rich. ch	65	White	61
Wall Street	50	Embassy	55	Herbert	33	Marland	55	Rich. ch	65	White	62
Fulton	51	Embassy	56	Herbert	33	Marland	55	Rich. ch	65	White	63
Boyle	52	Embassy	57	Herbert	33	Marland	55	Rich. ch	65	White	64
Naves	53	Embassy	58	Herbert	33	Marland	55	Rich. ch	65	White	65
Fell	54	Embassy	59	Herbert	33	Marland	55	Rich. ch	65	White	66

## SAN FRANCISCO HOTELS

A list of San Francisco hotels is presented for the benefit of those who expect to attend the annual session of the American Medical Association, June 13-17. Dr. F. C. Warnshuis is chairman of the Subcommittee on Hotels of the local Committee on Arrangements and may be addressed at Suite 2004

his utmost endeavor to secure satisfactory accommodations for all who may apply. Since all reservations are cleared through the subcommittee on hotels, it will greatly expedite matters if requests for reservations are addressed directly to Dr. Warnshuis at the address given.

### Schedule of Rates—All Rooms with Bath

Hotels	For 1 Person	For 2 Persons		Suites
		Double Bed	Twin Beds	
ALEXANDER HAMILTON 631 O'Farrell Street	\$5 00	\$6 00-\$7 00	\$6 00-\$7 00	
AMBASSADOR Mason and Eddy Streets	2 50	2 50	3 50	\$ 5 00-\$ 6 00
BARCLAY 235 O'Farrell Street	2 50	3 00		
BELLEVUE 505 Geary Street	3 50	4 50	6 00	8 00- 10 00
CALIFORNIAN Taylor and O'Farrell Streets	3 00	4 00- 4 50	4 50- 5 00	
CANTERBURY 750 Sutter Street	3 50	4 50	4 50- 6 00	
CARLTON 1075 Sutter Street		3 00		
CARTWRIGHT 524 Sutter Street	2 00- 2 50	3 00- 3 50	4 00	6 00- 7 00
CECIL, 545 Post Street	2 00- 3 00	3 00- 4 00	4 00- 4 50	7 00- 7 50
CHANCELLOR 433 Powell Street		5 00	6 00	
CLARK 217 Eddy Street	2 50- 3 00	3 50- 4 50	4 50- 5 50	5 50- 6 50
CLIFT Geary and Taylor Streets	4 00- 5 00		6 00- 8 00	
COMMODORE 825 Sutter Street	3 00- 4 00	4 00- 5 00	5 00- 6 00	
DRAKE WILTSHIRE 340 Stockton Street	3 50	5 00	6 00	
EL CORTEZ 550 Geary Street	3 50	5 00- 6 00	5 00- 8 00	12 00- 15 00
EMBASSY 610 Polk Street	2 50	3 50	5 00	
EMPIRE (formerly William Taylor) Leavenworth and McAllister Streets	3 50- 4 00	4 00- 5 00	5 00- 7 00	6 00- 16 00
FAIRMONT California and Mason Streets	3 50- 7 00	5 00- 10 00	5 00- 10 00	14 00- 22 00
FEDERAL 1087 Market Street	3 50		4 00	
FIELDING 386 Geary Street		5 00		
FRANCISCAN 350 Geary Street	3 00	3 50- 4 00	4 00	4 00- 6 00
GAYLORD 620 Jones Street	3 00	4 00- 4 50	5 10	7 00- 8 00
GOLDEN STATE Powell and Ellis Streets	2 50	3 50- 4 00	4 50- 6 00	5 00- 6 00
GOTHAM 835 Turk Street	3 50		4 50- 5 00	7 00
GOVERNOR 180 Turk Street	3 50	4 00		
GRAND 57 Taylor Street	3 50	4 50	5 00	
HERALD Eddy and Jones Streets	5 00	7 00		
HERBERT'S 161 Powell Street	3 50		4 50- 5 00	
KEYSTONE 54 Fourth Street	3 50			
KING GEORGE 334 Mason Street	3 50	4 50	6 50	
LANAERSHIM 55 Fifth Street	2 50- 3 50	3 00- 4 00	3 50- 4 50	6 00- 8 00
LA SALLE 225 Hyde Street	3 50			
LOMBARD 1015 Geary Street	2 50	3 00		
MANN Powell and O'Farrell Streets	3 00- 4 00	4 00- 5 00	4 50- 5 50	7 00- 8 00
MARR HOPKINS California and Mason Streets	5 00- 8 00	7 00- 12 00	7 00- 12 00	15 00- 25 00
MARR TWAIN 345 Taylor Street	2 00	3 00	5 50	6 00
MARYLAND 490 Geary Street	3 00	4 00	4 50	6 00
MAURICE 761 Post Street	3 50	5 00	6 00	
NEW DALT 34 Turk Street		3 00- 6 00		
NEW OLYMPIC 230 Eddy Street	3 50	5 00	6 00	
ORMOND 440 Eddy Street	2 00	3 00		5 00
OXFORD Market and Mason Streets	2 50- 3 00	3 00- 3 50	4 00	5 00- 7 00
PAISLEY 432 Geary Street		3 00		
PALACE Market and New Montgomery Streets	3 50- 6 00	5 00- 7 00	6 00- 8 00	12 00- 20 00
PICKWICK Fifth Street at Mission	3 00	4 00	5 00	
PLAZA Post and Stockton Streets	3 00	4 00- 4 50	4 50- 5 00	
REGENT 562 Sutter Street	2 50	3 00- 3 50	4 00	5 00- 6 00
ROOSEVELT 240 Jones Street	2 00	3 00		
ST FRANCIS Powell and Geary Streets	4 00- 7 00	6 00- 9 00	7 00- 14 00	15 00- 25 00
SENATE 467 Turk Street		3 00		
SENATOR 519 Ellis Street	2 50	4 00	4 50	
SHAW McAllister and Market Streets	3 00- 3 50	4 00- 5 00	4 50- 5 00	10 00
SIR FRANCIS DRAKE Sutter and Powell Streets	3 50- 7 00	5 00- 9 00	6 00- 10 00	12 00- 20 00
SOMERSON 440 Geary Street	3 00- 4 00		3 50- 4 00	4 50- 5 00
SPAUDLING 240 O'Farrell Street	2 00	2 50	3 00	
STEWART 353 Geary Street	2 50- 3 50	4 00- 6 00	4 00- 6 00	7 50- 10 00
SUTTER Sutter and Kearney Streets	2 00- 2 50	3 00- 3 50	3 50- 4 50	5 00- 6 00
UTICA 333 Fulton Street	2 50- 3 00	3 00- 3 50	4 00- 5 00	
VANDERBILT 221 Mason Street		3 00		
VIRGINIA 312 Mason Street	2 50	3 50	6 00	6 00
WASHINGTON Grant Avenue and Bush Street	4 00- 5 00	4 00- 5 00		8 00- 16 00
WHITCOMB 1231 Market Street	3 00- 4 00	4 00- 5 00	4 00- 6 00	8 00- 16 00
WILLIAM TAYLOR (now Empire) Leavenworth and McAllister Streets	3 50- 4 00	4 00- 5 00	5 00- 7 00	6 00- 16 00

450 Sutter Street San Francisco, Calif. The advertising announcement and coupon for reservations appear on advertising page 90 of this issue. It is quite probable that no further reservations can be accepted by some of the hotels named in the list but the chairman of the subcommittee on hotels will use

Fellows who intend to remain in San Francisco for the Rotary convention to be held the week following the annual session of the American Medical Association must obtain an extension of their hotel reservations through their local rotary clubs.

## MEETING PLACES

HOUSE OF DELEGATES Empire Room of the Hotel Sir Francis Drake Sutter and Powell streets

OPENING GENERAL MEETING Opera House Civic Center  
GENERAL SCIENTIFIC MEETINGS Opera House and Auditorium of Veterans Building Civic Center

### SECTIONS OF SCIENTIFIC ASSEMBLY

PRACTICE OF MEDICINE Opera House Civic Center  
SURGERY GENERAL AND ABDOMINAL Auditorium of Veterans Building Civic Center

OBSTETRICS AND GYNECOLOGY Auditorium of Veterans' Building, Civic Center

OPHTHALMOLOGY Room 223 Veterans Building Civic Center

LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY Room 223, Veterans Building Civic Center

PEDIATRICS Opera House Civic Center

PHARMACOLOGY AND THERAPEUTICS Room 1 Veterans' Building Civic Center

**PATHOLOGY AND PHYSIOLOGY** Room 1, Veterans Building, Civic Center

**NERVOUS AND MENTAL DISEASES** Assembly Hall, Empire Hotel, Leavenworth and McAllister streets

**DERMATOLOGY AND SYPHILOLOGY** Auditorium A, Empire Hotel, Leavenworth and McAllister streets

**PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH** City Health Building, Civic Center

**UROLOGY** Auditorium A, Empire Hotel, Leavenworth and McAllister streets

**ORTHOPEDIC SURGERY** Assembly Hall, Empire Hotel between Leavenworth and McAllister streets

**GASTRO ENTEROLOGY AND PROCTOLOGY** City Health Building, Civic Center

**RADIOLOGY** Loge of Opera House, Civic Center

**GENERAL HEADQUARTERS SCIENTIFIC EXHIBIT REGISTRATION** Bureau, Technical Exhibits, Information Bureau and Branch Postoffice, Civic Auditorium in Civic Center, on Grove Street between Polk and Larkin streets

## GENERAL SCIENTIFIC MEETINGS

### MONDAY, JUNE 13

#### OPERA HOUSE, CIVIC CENTER

- 2 00 p m Animal Experimentation in Medicine  
A J CARLSON, Chicago
- 2 30 p m Antepartum Care OTTO H SCHWARZ, St Louis
- 3 00 p m The Ophthalmoscopic Signs of Constitutional Disease ARTHUR J BENNETT, Albany, N Y
- 3 30 p m Mental Hygiene as Related to the Psychoneuroses  
W E GARDNER, Louisville, Ky
- 4 00 p m The Relation of Photography to Medicine  
RALPH P CREER, Illinois, Ill

### TUESDAY, JUNE 14

#### MEDICAL DIVISION OPERA HOUSE CIVIC CENTER

- 9 30 a m The Newer Concepts of Intestinal Infection  
JOSEPH FILSON, New York
- 10 00 a m Experimental Investigations on the Influence of Hypoglycemia on the Central Nervous System and Their Significance for the Treatment of Schizophrenia ERNST GEILHOFF, Chicago
- 10 30 a m The Newer Knowledge of the Sensitivity Reactions of the Blood and Bone Marrow to Certain Drugs THOMAS FITZ-HUGH JR Philadelphia
- 11 00 a m The Prognosis in Syphilis  
HUGH J MORGAN, Nashville Tenn
- 11 30 a m Eczema Its Practical Management  
FRED WISER New York
- 2 00 p m The Advances in the Treatment of Tuberculosis Under the Guidance of Organized Medicine  
FRANK W BURGE, Philadelphia
- 2 30 p m Ixchel Therapy of Syphilis A Comparative Evaluation of the Various Methods of Treatment  
Cooperative Clinical Group PAUL A O'LEARY, Chairman Rochester Minn; WALTER L BRUETSCH Indianapolis; FRANKLIN G CRAVEN, Denver; WALTER M SIMPSON, Dayton Ohio; HARRY C SOLOMON, Boston; STAFFORD L WARREN Rochester, N Y

- 3 00 p m Intrathoracic Hodgkins Disease as a Diagnostic and Therapeutic Problem  
CHARLES B WRIGHT, Minneapolis

- 3 30 p m The Office Management of Bright's Disease  
THOMAS ADAMS San Francisco

### TUESDAY, JUNE 14

#### SURGICAL DIVISION AUDITORIUM OF VETERANS BUILDING, CIVIC CENTER

- 9 30 a m Gastric Hemorrhage  
DANIEL B PFEIFFER, Philadelphia
- 10 00 a m Rational Consideration of Peripheral Vascular Disease Based on Physiologic Principles  
ALTON OLSNER and MICHAEL I DEBARKA, New Orleans
- 10 30 a m Cystic Mastitis and Its Treatment  
DRAN LEWIS Baltimore
- 11 00 a m A Program for Early Aggressive Treatment in Pulmonary Tuberculosis  
CASPER F HUNTER Denver
- 11 30 a m Evaluation of the Injection Treatment of Herpes A Statistical and Analytic Study Based on Four Years Experience with Follow Up Studies of Four Hundred Cases  
FRANKLIN I HARRIS and A S WHITE San Francisco
- 2 00 p m The Diagnosis and Treatment of Wounds of the Heart  
DAN C LUKIN Atlanta, Ga
- 2 30 p m Five Years Experience with Meningiomas of the Brain  
GILBERT MORRAN Boston
- 3 00 p m The Problem of Diagnosis and Treatment of Prostatism FRANK HENMAN, San Francisco
- 3 30 p m Cancer of the Cervix Uteri Its Early Recognition and Manifestations  
KARI H MARTZIOFF, Portland Ore
- 4 00 p m Lesions of the Biliary Tract  
WALTERMAN WALTERS Rochester Minn

## SYMPOSIUM ON HEALTH PROBLEMS IN EDUCATION

A second Symposium on Health Problems in Education under the sponsorship of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, together with the Section on Pediatrics the Section on Preventive and Industrial Medicine and Public Health the Section on Ophthalmology and the Section on Laryngology Otolaryngology and the American Medical Association will be held in the City Health Building, Civic Center, San Francisco, June 14 at 2 p m. Dr Robert T Legge Berkeley Calif, will preside. The following program will be presented:

Looking Backward in School Health

THOMAS D WOOD New York

Relationships of Health Service in the Schools to Health Education and the General Curriculum

FRANK W BAILEY Berkeley Calif

Discussion to be opened by HAROLD H MITCHELL Astoria N Y and W H ORION Sacramento Calif

The Physician's Contribution to Education

The Educator's Point of View

GEORGE A RICE Oakland Calif

The School Physician's Point of View

ARTHUR E WARD Seattle

The Practicing Physician's Point of View

BURT R SHERRY Detroit

Better Vision for School Children

C S O'LEARY Iowa City

Discussion to be opened by WILLIAM H CRETCH Denver

Qualifications for Teaching Health

THOMAS A STORRY Stanford University Calif

Discussion to be opened by WILLIAM P STEWARD San Francisco

How Shall Sex Be Taught in the Schools

THELMA B RICE Indianapolis

Discussion to be opened by ROSWELL H JONES Los Angeles

Audiometers and Their Place in the School Program

I H JONES and VERN O KIRBY Los Angeles

Discussion to be opened by ARTHUR A HAYES Chicago



## LOCAL COMMITTEE ON ARRANGEMENTS

### Executive Committee

HOWARD MORROW, San Francisco Chairman  
ALANSON WEEKS, San Francisco Treasurer  
JUNIUS B HARRIS, Sacramento  
GEORGE G REINLE, Oakland  
J C GEIGER San Francisco  
L R CHANDLER San Francisco  
FREDRICK C WARNSHUIS, San Francisco Secretary

### Subcommittees

#### Subcommittee on Sections and Section Work

Practice of Medicine Thomas J Lennon Chairman H G MacLean of Oakland DeWitt K Burnham Kenneth D Gardner, Clayton D Mote  
Surgery, General and Abdominal A R Kilgore Chairman, Edmund W Butler, Robertson Ward G D Delprat H Brodie Stephens, Henry H Searls, W W Washburn  
Obstetrics and Gynecology Philip H Arnot Chairman, T Henshaw Kelly, A M Vollmer C A De Puv of Oakland Karl L Schaupp  
Ophthalmology Otto Barkan Chairman F C Cordes A E Edgerton, Wilber F Sweet

Dermatology and Syphilology John M Graves, Chairman, C J Lunsford and F G Novy of Oakland

Preventive and Industrial Medicine and Public Health I C Geiger, Walter M Dickie and Robert T Legge of Berkeley

Urology Clark M Johnson Chairman Sidney Olsen, Lloyd R Reynolds

Orthopedic Surgery H H Hitchcock of Oakland Chairman, F C Bost, W I Cox, John J Loutzenheiser

Gastro-Enterology and Proctology Fred H Kruse, Chairman Dudley A Smith, Montague S Woolf, Walter W Boardman M Felix Cunha, Edward W Hanlon, J W Morgan

Radiology H E Ruggles Chairman, R R Newell, I S Ingber Carl Benson Bowen of Oakland Lloyd Bryan

Subcommittee on Registration S P Lucia, Chairman Richard D Friedlander Edgar J Munter, L H Garland N N Epstein, G Dan Delprat

Subcommittee on Technical Exhibits T L Althausen

Subcommittee on Scientific Exhibit Stanley Mentzer, Chairman Howard B Dixon Willard E Kay Ernst Gehrels



THE U S FLEET IN SAN FRANCISCO BAY AT NIGHT

Laryngology Otolaryngology and Rhinology R C Martin Chairman Rex E Ashley, Lewis F Morrison, George McClure of Oakland

Pediatrics E B Shaw, Chairman George D Lyman, Francis Scott Smyth

Pharmacology and Therapeutics Chauncey D Leake Chairman, P J Hanzlik, Maurice L Tamler

Pathology and Physiology A M Moody Chairman I L Carr, I F Rinehart, William Dock P P E Michael of Oakland

Nervous and Mental Diseases Edward W Twitchell Chairman George S Johnson P A Glabe

Subcommittee on Hotels Frederick C Warnshuis, Chairman  
Subcommittee on Printing and Badges Frederick C Warnshuis

Subcommittee on Publicity I C Geiger Chairman, E M Pallette of Los Angeles, Karl L Schrupp

Subcommittee on Finance Alanson Weeks Chairman Langley Porter W P Shepard C A Dukes of Oakland Chauncey D Leake

Subcommittee on Women Physicians Alice F Maxwell, Chairman Dorothy W Atkinson Mary E Mathes Lois Brock Watson Huldah F Thelander Alice C Lepler

Subcommittee on Hospitals and Clinics W L Carter Chairman C A Walker Howard H Johnson

Subcommittee on Transportation, Taxis and Tours Laurence R. Taussig, Chairman, Carl L. Hoag, Harold A. Fletcher, George H. Becker

Subcommittee on Entertainment W. D. Horner, Chairman, W. W. Washburn, Garnett Cheney, Everett Carlson, Stacy R. Mettler, Edwin L. Bruck, Philip H. Arnot

Opening General Session William J. Kerr, Chairman, LeRoy H. Briggs, Arthur L. Bloomfield, Morton R. Gibbons, H. C. Moffitt

President's Reception and Ball H. C. Shepardson, Chairman, Hans Barkan, D. K. Pischel, Frederick L. Reichert, Edmund W. Butler, George K. Rhodes, Philip H. Arnot, Robertson Ward, W. D. Horner, Howard W. Fleming, Wilber F. Swett, Francis S. Smyth, Stacy R. Mettler, Edwin L. Bruck

Invited Guests Clarence G. Toland of Los Angeles, Chairman, George H. Kress and E. M. Pallette of Los Angeles, Junius B. Harris of Sacramento, W. W. Robles of Riverside, John H. Graves

Alumni and Fraternity Banquets Rea E. Ashley, Chairman, John W. Cline, William G. Donald of Berkeley, Joseph W. Crawford

Golf James W. Morgan, Chairman, George McClure of Oakland, Ernest D. Chipman, George A. Gray of San Jose, W. G. Moore, Joseph L. McCool

Women's Entertainment Mrs. George Becker, Mrs. Chauncey Leake, Mrs. Edmund Morrissey, Mrs. Lewis Morrison, Mrs. Jesse Carr, Mrs. Howard Fleming

Woman's Auxiliary Mrs. J. C. Geiger, Chairman, Mrs. John Humber, Mrs. Hobard Rogers of Oakland

## ENTERTAINMENT

### Dinner for Delegates

A dinner and entertainment is being arranged for Monday, June 13, 7 p. m., in the Rose and Concert rooms of the Palace Hotel for members of the House of Delegates of the American Medical Association.

### Luncheon for Delegates

A luncheon for the officers and the members of the House of Delegates of the American Medical Association is being planned for Tuesday noon, June 14, between the morning and afternoon sessions of the House of Delegates at the Hotel St. Francis Drake.

### Alumni and Group Dinners

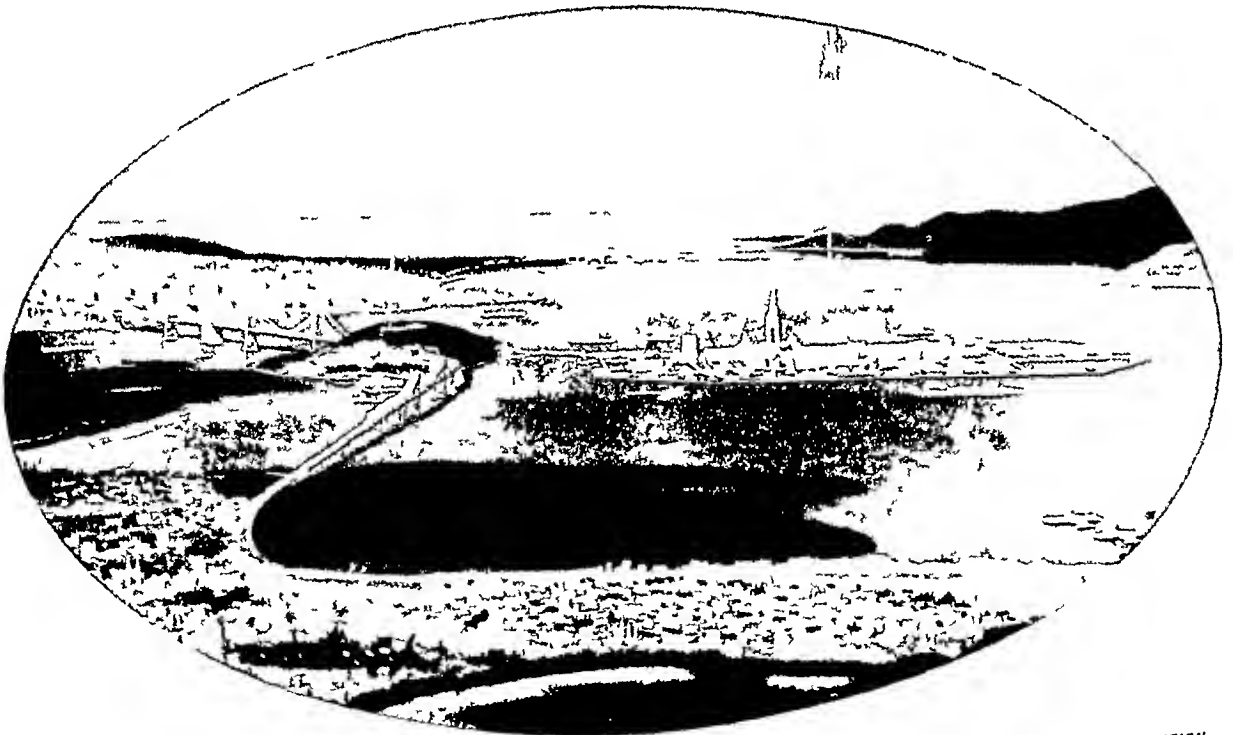
Notice has been received of the following alumni and group dinners to be held during the time of the session:

ALPHA OMEGA ALPHA, Thursday, June 16, 6 p. m., in the French Parlor of the Palace Hotel. Dr. George Dock will deliver an address.

AMERICAN COLLEGE OF RADIOLOGY, Wednesday, June 15, 7 p. m., in Parlor I of the Hotel St. Francis.

AMERICAN HEART ASSOCIATION, Friday, June 10, 7 p. m., in the Empire Room of the Hotel St. Francis Drake.

ASSOCIATION FOR THE STUDY OF ALLERGY, Saturday, June 11, 7 p. m., in the Assembly Room of the Empire Hotel.



THE TWO NEW BRIDGES AND SAN FRANCISCO'S TREASURE ISLAND 400 ACRE SITE OF THE 1939 INTERNATIONAL EXPOSITION

### Opening General Meeting

The Opening General Meeting will be held on Tuesday evening, June 14, in the Opera House in Civic Center. The program will begin at 8 o'clock.

### President's Reception and Ball

The President of the American Medical Association will be honored with a reception and ball to be held Thursday evening, June 16, at 9 o'clock at the Palace Hotel.

ASSOCIATION FOR THE STUDY OF INTERNAL SECRETIONS, Monday, June 13, 7 p. m., in the Colonial Room of the Hotel St. Francis.

CREIGHTON UNIVERSITY ALUMNI, Wednesday, June 15, 7 p. m., in the Room of the Dons of the Marlborough Hotel.

HARVARD UNIVERSITY ALUMNI, Wednesday, June 15, 7 p. m., in the Gold Ball Room of the Palace Hotel.

ROSH MEDICAL COLLEGE UNIVERSITY OF CHICAGO, Wednesday, June 15, 7 p. m., in the California Room of the Palace Hotel.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY, Wednesday, June 15, 7 p m, at the Hotel St Francis

SECTION ON NERVOUS AND MENTAL DISEASES, Wednesday, June 15, at Louis' Fashion Restaurant

STANFORD UNIVERSITY ALUMNI, Wednesday, June 15, 7 p m, in the Roof Lounge of the Clift Hotel

UNIVERSITY OF LOUISVILLE ALUMNI, Wednesday, June 15, 7 p m, in Room D of the Clift Hotel

UNIVERSITY OF MICHIGAN ALUMNI, Wednesday, June 15, 7 p m in the French Parlor of the Palace Hotel

UNIVERSITY OF SOUTHERN CALIFORNIA ALUMNI, Wednesday, June 15, 7 p m, in Room 210 of the Hotel St Francis Reservations may be made with Dr Harold R Witherbee 3780 Wilshire Boulevard, Los Angeles

WOMEN PHYSICIANS, Thursday, June 16 7 p m, in the Room of the Dons of the Mark Hopkins Hotel

#### Fraternity and Club Luncheons

Notice has been received of the following fraternity and club luncheons

ALPHA KAPPA KAPPA FRATERNITY, Wednesday, June 15 12 m, in Room D of the Clift Hotel

ALPHA MU PI OMEGA MEDICAL FRATERNITY, Wednesday, June 15, 12 30 p m, at the Hotel St Francis

AMERICAN COMMITTEE ON MATERNAL WELFARE Wednesday, June 15, 12 m, in the Borgia Room of the Hotel St Francis Reservations may be made through the office of the committee at 650 Rush Street, Chicago

NORTHWEST MEDICINE, Wednesday, June 15, 12 30 p m, in Room 1 of the Empire Hotel

POSTGRADUATE INSTRUCTIONS, Wednesday, June 15, 12 30 p m, in Room 220 of the Hotel St Francis

THE ALUMNI OF THE NEW YORK EYE AND EAR INFIRMARY, Thursday, June 16, 1 p m, at the Mark Hopkins Hotel

THE ASSOCIATED DIPLOMATES OF THE NATIONAL BOARD OF MEDICAL EXAMINERS, Wednesday, June 15, 12 30 p m, at the Palace Hotel

#### Sailing on San Francisco Bay

Fellows interested in sailing on San Francisco Bay during the annual session may do so if they will write to Dr Edwin L Bruck, 384 Post Street, San Francisco

#### Visit to San Quentin Prison

Fellows desiring to visit San Quentin Prison, which is located about twenty five miles north of San Francisco are requested to get in touch with Dr Laurence R Taussig 384 Post Street San Francisco

#### Navy Hospital Ship "Relief"

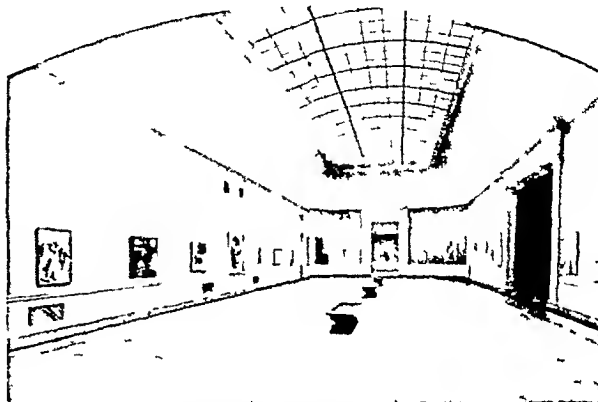
The Surgeon General of the Navy has arranged to have the Navy Hospital Ship *Relief* at anchor during the entire week of the annual session of the American Medical Association Visiting hours will be from 10 a m to 4 p m daily and pier location will be announced in the *Daily Bulletin*

#### View of City

The Pacific Telephone and Telegraph Company extends a cordial invitation to view the city of San Francisco and the bay region from the roof of the Telephone Building at 140 New Montgomery Street, which will be open daily except Saturday and Sunday, between the hours of 9 a m and 4 30 p m An invitation is also extended by the company to members when touring Chinatown, to visit the China Central Office at 743 Washington Street

#### American Physicians' Art Association

An exhibit of art pieces made by the members of the American Physicians Art Association will be held in the San Francisco Museum of Art in the Veterans' Building in Civic



SAN FRANCISCO MUSEUM OF ART IN  
VETERANS' BUILDING

Center There will be daily luncheons, June 13 to 18, at which brief addresses will be made, at the Maison Paul, one block from Civic Center

Members of the Association are invited to the exhibit and are requested to write Dr Francis H Redewill, Secretary of the the American Physicians Art Association 521 Flood Building, San Francisco, for further information

#### Entertainment for Visiting Ladies

A boat ride on the bay is being arranged for Tuesday afternoon, June 14 and a bus tour of the city and bridges for Wednesday afternoon June 15

At 7 p m on Wednesday, June 15, there will be a Chinese dinner in Chinatown with the American Medical Women's Association

On Thursday, June 16 7 p m, preceding the President's Reception and Ball, there will be a banquet at the Mark Hopkins Hotel

## WOMAN'S AUXILIARY

The headquarters of the Woman's Auxiliary will be located in the Fairmont Hotel Auxiliary visitors are requested to register immediately on arrival in San Francisco

San Francisco welcomes you and hopes that your visit here will be a most enjoyable one Do not fail to visit the exhibits in the Tapestry Room They present a vital picture of the work being done by county, state and national auxiliaries Please make reservations and purchase tickets for all functions immediately on arrival at the hotel at the ticket and information desks in the lobby

#### SUNDAY, JUNE 12

Reception on arrival of guests in hotel lobby Registration, 10 a m to 4 p m

#### MONDAY JUNE 13

Registration, 9 a m to 5 p m

- |           |  |
|-----------|--|
| 10 00 a m | National Board Meeting Empire Room   |
| 12 30 p m | Informal Luncheon for board members Green Room Fee \$1 55 including tax  |
| 2 00 p m  | National Board Meeting Green Room  |
|           | 1 Choice of sight seeing trips Leave from Fairmont Hotel   |
|           | (a) Over the San Francisco Oakland Bay Bridge to the University of California Complimentary tea at the International House Hostesses Alameda County Woman's Auxiliary Fee \$1 85 |

(b) Tour of city of San Francisco through Golden Gate Park Japanese Tea Garden, Fleishacker Pool and the Zoo along shores of Pacific Ocean, Cliff House, Presidio, along Marina to Fisherman's Wharf, then through Chinatown Fee \$1.50

2 (a) Golf Medal round

(b) Tennis, horseback riding and swimming



JUNIUS B. HARRIS, M.D.  
Sacramento, Calif.

Vice President of the American Medical Association 1937-1938

7 00 p m Chinese dinner and trip through Chinatown including visit to Theater and Joss House Fee \$1.55, including tax

8 30 p m Trip through Chinatown For further details ask at Information Desk

#### TUESDAY, JUNE 14

Formal opening of convention Gold Room, Mrs. Augustus S. Kech, presiding

12 30 p m Boat trip and buffet luncheon An excursion on the San Francisco Bay, including visit to Treasure Island where a buffet luncheon will be served Fee \$1, including luncheon and admission to Fair Grounds Leave from Pier 3, foot of Jackson Street

8 00 p m Opening General Meeting of the American Medical Association Opera House, Civic Center

#### WEDNESDAY, JUNE 15

9 00 a m General Session Gold Room, Mrs. Augustus S. Kech, presiding

1 00 p m Auxiliary luncheon, Mrs. Augustus S. Kech presiding Fee \$1.55, including tax Terrace Room Music Speaker, Dr. Irvin Abell President of the American Medical Association

2 30 p m Conferences, Empire Room Hygeia Conference, Mrs. James Lester, Leader Program Conference, Mrs. V. E. Holcombe, Leader President's Conference, Mrs. C. C. Tomlinson, Leader

Evening Open house at the San Francisco County Medical Society's Building This party will be complimentary to Auxiliary members Time to be announced later The San Francisco County Medical Society is housed in one of San Francisco's old historic homes

#### THURSDAY, JUNE 16

10 00 a m Post Convention Executive Board Meeting Empire Room, Mrs. C. C. Tomlinson, presiding

10 30 a m Post Convention Board of Directors' Meeting, Mrs. C. C. Tomlinson, presiding

11 00 a m Sight-seeing trip to Stanford University Over Skyline Boulevard to Stanford University visiting the chapel and home of former President Herbert Hoover Luncheon will be served at the Allied Arts Return trip over the Bay Shore Highway Fee \$3.50, including bus, luncheon and tax Hostesses, Santa Clara and San Mateo County Auxiliaries



HOWARD MORROW, M.D.  
Chairman of the Local Committee on Arrangements

1 30 p m Across the scenic Golden Gate Bridge into Marin County up Mount Tamalpais stop at Mor Woods one of California's famous Redwood Groves Fee \$2.25

4 00 to 5 00 p m Musical in Exhibit Room (Tapestry Room) no fee

7 00 p m Bring your Husband Dinner Gold and Red Rooms, Fairmont Hotel Fee \$2.00 Program to be announced later

9 30 p m President's Reception and Ball Palace Hotel

## AMERICAN MEDICAL WOMEN'S ASSOCIATION

The women physicians of Los Angeles will entertain visiting women physicians on Friday and Saturday, June 10 and 11, beginning with a buffet supper at Casa Amada at 7 p m, June 10. The Saturday program will include a tour of the County Hospital, luncheon at the County Medical Building and a tour of major moving picture studios. The train for San Francisco will leave at 8 p m. Dr Vera Waegle, 649 Olive Street, Los Angeles, is hospitality chairman and will take reservations.

The headquarters of the American Medical Women's Association in San Francisco will be at the Fairmont Hotel and the general chairman of arrangements is Dr Mary E Mathes, 350 Post Street.

The following program has been arranged

## SUNDAY, JUNE 12

10 00 a m to 1 00 p m Registration  
11 00 a m Informal breakfast.  
1 00 p m to 4 00 p m Sight seeing tours  
2 30 p m Board meeting, Dr Mabel M Akin, presiding  
4 00 p m Tea at Dr Arthurs' Sea Cliff Home  
7 00 p m Past President's banquet in the Gold Room

## MONDAY, JUNE 13

10 00 a m. to 2 00 p m Business meetings, Dr Mabel M Akin, presiding  
12 30 p m Luncheon in Gold Room  
7 00 p m Inaugural Banquet.

## TUESDAY, JUNE 14

10 00 a m Board of directors meeting, Dr Kate Karpeles, presiding  
12 30 p m Luncheon in the Gold Room  
7 00 p m Banquet for all women of American Medical Association in Gold Room

## WEDNESDAY, JUNE 15

7 00 p m Chinese Dinner, Chinatown, San Francisco

Visiting women are invited to stop before or after the convention at Portland, Ore. Automobile tours are planned to Mount Hood Lodge, Bonneville Dam on the Columbia River Highway, Rose Gardens and Rose Show and Medical School. Dr Lena Kenn, 825 Medical Dental Building, Portland, Ore, is chairman of hospitality.

## GOLF TOURNAMENT

The American Medical Golfing Association will hold its twenty-fourth annual tournament at the beautiful San Francisco Golf and Country Club on Monday, June 13. Members may tee off from 7 30 a m to 2 30 p m.

## FIFTY TROPHIES AND PRIZES

Thirty-six holes of golf will be played in competition for the fifty trophies and prizes in the nine events. Trophies will be awarded for the Association Championship, thirty-six holes gross, the Will Walter Trophy, the Association Handicap Championship, thirty-six holes net, the Detroit Trophy, the Championship Flight, First Gross, thirty-six holes, the St Louis Trophy, the Championship Flight, First Net, thirty-six holes, the President's Trophy, the Eighteen Hole Championship, the Golden State Trophy, the Eighteen Hole Handicap Championship, the Ben Thomas Trophy, the Maturity Event, limited to Fellows over 60 years of age, the Minneapolis Trophy, the Oldguard Championship, limited to competition of past presidents, the Wendell Phillips Trophy, and the Kickers Handicap, the Atlantic City Trophy. Other events and prizes will be announced at the first tee.

## FELLOWS IN EVERY STATE OF THE UNION

Dr Walt P Conaway of Atlantic City, N J, is president, and Drs E S Edgerton of Wichita Kan, and George Washington Hull of Chicago are vice presidents of the A M G A, which was organized in 1915 by Drs Will Walter, Wendell Phillips and Gene Lewis and now totals 1,400 members representing every state in the Union. The living past presidents include Drs Thomas Hubbard of Toledo, Fred Bailev of St. Louis, Edward Martin of Media Pa, Robert Moss of LaGrange, Texas, Charlton Wallace of New York, Will Walter of Charlottesville, Va, James Eaves of Oakland, Calif, D Chester Brown of Danbury, Conn, Samuel Childs of Denver, W D Sheldon of Rochester, Minn, Walter Schaller of San Francisco, Edwin Zabriskie of New York, Frank A Kelly of Detroit, John Welsh Croskey of Philadelphia, Homer K Nicoll of Chicago, Charles Lukens of Toledo, M M Cullom of Nashville and W Albert Cook of Tulsa, Okla.

DR JAMES W MORGAN HEADS SAN FRANCISCO  
GOLF COMMITTEE

The San Francisco committee is under the chairmanship of Dr James W Morgan 384 Post Street San Francisco. He

will be assisted by Drs George A Gray, Ernest D Chipman, William G Moore and George McClure.

## APPLICATION FOR MEMBERSHIP

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A M G A. Write the Executive Secretary, William J Burns, 2020 Olds Tower, Lansing, Mich, for an application blank. Participants in the A M G A tournament are required to furnish their home club handicap, signed by the club secretary. No handicap over 30 is allowed, except in the Kickers (Blind Bogey). Only active Fellows of the A M G A may compete for prizes. No trophy is awarded a Fellow who is absent from the annual dinner.

## A MAGNIFICENT COURSE

The twenty-fourth tournament of the American Medical Golfing Association at the San Francisco Golf and Country Club promises to be a pleasant affair. The club is one of the most elaborate in the country. The A M G A officers anticipate that some two hundred medical golfers from all parts of the United States will play in San Francisco on June 13.

## GOLFERS TOUR

The American Medical Golfing Association has arranged a tour including an ocean voyage from New York to New Orleans on the S S Dixie, sailing June 1. The first game of golf of the tour will be played in New Orleans June 7, other games will be played on excellent courses on the way to San Francisco with stopovers at Houston, Galveston and San Antonio, Texas, and Los Angeles. On the return trip by way of Portland, Seattle, Vancouver, Lake Louise and Banff there will be two additional games of golf, more sight-seeing and a water trip on Puget Sound. Nongolfers as well as golfers and their ladies are invited to take this trip, and if time does not permit making the ocean voyage the 'Golfers Special' may be joined at New Orleans, June 7, perhaps others who will be unable to make the outgoing trip can make the return journey through the northwest, including Vancouver, Lake Louise and Banff. Further information and rates may be had from Mr W J Burns 2020 Olds Tower Lansing Mich.



## PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

## PROGRAM OF THE OPENING GENERAL MEETING

Opera House, Civic Center  
Tuesday, June 14, 8 p m

## Music

Call to Order by the President, J H J UPHAM

Invocation REV C S S DUTTON

Welcome to San Francisco

HON ANGELO ROSSI, Mayor of San Francisco

WILLIAM VOORSANGER, President, San Francisco County Medical Society

W W ROBLEE, President, California Medical Association

Announcements HOWARD MORROW, Chairman, Local Committee on Arrangements

## Music

Introduction and Installation of President-Elect IRVIN ABELL, Louisville, Ky

Address IRVIN ABELL

## Music

Presentation of Medal to Retiring President J H J UPHAM

ARTHUR W BOOTH, Chairman of the Board of Trustees

Presentation of Distinguished Service Medal

## Music

## THE PROGRAMS OF THE SECTIONS

## Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order that will be followed in the Official Program, nor is the list complete. The Official Program will be similar to the programs issued in previous years and will contain the final program of each section with abstracts of the papers, as well as lists of committees, program of the Opening General Meeting, list of entertainments, map of San Francisco, and other information. To prevent misunderstandings and protect the interest of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each Fellow on registration.

## SECTION ON PRACTICE OF MEDICINE

MEETS IN AUDITORIUM OF OPERA HOUSE, CIVIC CENTER

## OFFICERS OF SECTION

Chairman—FRANCIS G BLAKE, New Haven, Conn

Vice Chairman—T H COFFEN, Portland, Ore

Secretary—FRED M SMITH, Iowa City

Executive Committee—WILLIAM J KERR, San Francisco, JOHN H MUSSER, New Orleans, FRANCIS G BLAKE, New Haven, Conn

Wednesday, June 15—2 p m.

## Treatment of Cardiac Irregularities

GEORGE FAHR, Minneapolis  
Discussion to be opened by HORACE M KORN, Iowa City, and WILLIAM J KERR, San Francisco

## The Relation of Chronic Pulmonary Disease to Right Ventricular Hypertrophy and Cardiac Failure (Lantern Demonstration)

DONALD E GRIGGS, NEWTON EVANS and CHARLES B COGGIN, Los Angeles

Discussion to be opened by ROBERT W LAMSON and B O RAULSTON, Los Angeles

## The Frank Billings Lecture

WALTER L BIERRING, Des Moines, Iowa.

## The Present Status of the Serum Therapy of Lobar Pneumonia.

M A BLANKENHORN, Cincinnati

## Pneumonia in Private Practice (Lantern Demonstration)

RUSSELL L CECIL and EDGAR A LAWRENCE, New York.  
Discussion on papers of DR. BLANKENHORN and Drs CECIL and LAWRENCE to be opened by EDWARD S ROGERS, Albany, N Y, and EUGENE S KILGORE, San Francisco

Thursday, June 16—2 p m

## Bronchial Asthma Its Diagnosis and Treatment (Lantern Demonstration)

ALBERT H ROWE, Oakland Calif  
Discussion to be opened by CHARLES H EYERMAN, St Louis, and GEORGE PINESS, Los Angeles

## Chairman's Address (Lantern Demonstration)

FRANCIS G BLAKE, New Haven, Conn

## The Treatment of Rheumatoid Arthritis (Lantern Demonstration)

MARTIN H DAWSON and RALPH H BOOTS, New York  
Discussion to be opened by ERNEST E IRONS, Chicago

## The Outlook in Thrombo-Angitis Obliterans (Lantern Demonstration)

BAYARD T HORTON, Rochester, Minn  
Discussion to be opened by DAVID P BARR, St Louis and J C FLIPPIN, Charlottesville, Va

## Hypertension A Century After Bright

ROY W SCOTT, Cleveland  
Discussion to be opened by T H COFFEN, Portland, Ore, and FRANK R NUZUM, Santa Barbara, Calif

## Contribution of Emotional Factors to Physical Disease

KARL A MENNINGER, Topeka, Kan  
Discussion to be opened by EDGAR V ALLEN, Rochester, Minn, and DWIGHT L WILBUR, San Francisco

Friday, June 17—2 p m

## Election of Officers

## Tinnitus (Lantern Demonstration)

DANIEL B HAYDEN and EDWARD L CHAINSKI, Chicago

## Acute Glomerular Nephritis with Special Reference to the Course and Prognosis A Study of 150 Cases (Lantern Demonstration)

FRANCIS D MURPHY, Milwaukee  
Discussion to be opened by THOMAS ADDIS, San Francisco, and WILLARD J STONE, Pasadena, Calif

## A New Interpretation of Diabetes Mellitus in Obese Middle Aged Persons Cure by Reduction of Weight (Lantern Demonstration)

L H NEWBURGH and J W CONN, Ann Arbor, Mich  
Discussion to be opened by BERNARD SMITH, Los Angeles, and J W SHERRILL, San Diego, Calif

## Treatment of Addison's Disease (Lantern Demonstration)

EDWARD H R NEARSON, Rochester, Minn

## The Present Status of the Treatment of Undescended Testes and Hypogonadism (Lantern Demonstration)

W O THOMPSON and N J HECKEL, Chicago  
Discussion to be opened by HANS LISSER, San Francisco, and E KOST SHELTON, Los Angeles

## The Management of Biliary Tract Disease Associated with Disturbances in Cholesterol Metabolism A Review of 100 Cases Treated Medically and Surgically (Lantern Demonstration)

J RUSSELL TWISS and JAMES H BARNARD, New York  
Discussion to be opened by ARTHUR L BLOOMFIELD, San Francisco, and MARTIN E REHFUSS, Philadelphia

## SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN AUDITORIUM OF VETERANS' BUILDING, CIVIC CENTER

## OFFICERS OF SECTION

Chairman—HUGH H TROUT, Roanoke, Va

Vice Chairman—FREDERICK L REICHERT, San Francisco

Secretary—HENRY W CAVE, New York

Executive Committee—HOWARD M CLUTE, Boston, ROBERT S DRYNEMORE, Cleveland, HUGH H TROUT, Roanoke, Va.

Wednesday, June 15—9 a m.

## Surgical Lesions of the Adrenal Glands (Lantern Demonstration)

WALTERMAN WALTERS and EDWIN JOHN KEPLER, Rochester Minn.

## Early Recognition of Shock and Its Differentiation from Hemorrhage (Lantern Demonstration)

VIRGIL HOLLA D MOON, Philadelphia

## The Use of Free Full-Thickness Skin Graft (Lantern and Motion Picture Demonstration)

J EASTMAN SHEPHERD, New York

## Electrolysis The Controlling Factor in the Use of Metals in Fractures (Lantern Demonstration)

CHARLES SCOTT VENABLE, San Antonio, Texas

Fracture of the Neck of the Femur  
MARTIN B TINKER and MARTIN B TINKER JR with the  
collaboration of A T KERR and W M SAWDON,  
Ithaca, N Y  
Cerebrocranial Injuries Detailed Study of 1433 Cases  
GEORGE W SWIFT, Seattle

Thursday, June 16—9 a m

Early Differential Diagnosis of Breast Tumors (Lantern and  
Motion Picture Demonstration)  
ARTHUR CARROLL SCOTT, Temple, Texas  
Chairman's Address Carcinoma of the Breast (Motion Picture  
Demonstration) HUGH H TROUT, Roanoke, Va  
Gastroduodenostomy for Certain Duodenal Ulcers (Lantern  
Demonstration) HOWARD M CLUTE Boston  
Routine Operations versus Scientific Management of Spreading  
Peritonitis Complicating Acute Perforative Appendicitis  
(Lantern Demonstration)  
JOHN OSCAR BOWER, Philadelphia  
The Use of Small Intestine Decompression in the Treatment of  
Intestinal Obstruction (Lantern Demonstration)  
GROVER CLEVELAND PENBERTH, CHARLES G JOHNSTON,  
R J NOER and J C KENNING Detroit  
One Stage Combined Abdominoperineal Resection of the Rectum  
for Cancer (Lantern Demonstration)  
FRED W RANKIN, Lexington, Ky

Friday, June 17—9 a m

Election of Officers  
The Problem of Disruption of Abdominal Wounds and Post-  
operative Hernia (Lantern Demonstration)  
ALBERT O SINGLETON and TRUMAN G BLOCKER JR,  
Galveston, Texas  
Mediastinal Infections Due to Esophageal Perforations (Lantern  
Demonstration)  
CHARLES EATON PHILLIPS, Los Angeles  
Management of Intestinal Fistulas (Lantern and Motion Picture  
Demonstration)  
CLAUDE FRANK DIXON, Rochester, Minn  
Surgical Aspects of Hypoglycemia Associated with Liver Dam-  
age (Lantern Demonstration)  
FREDERICK A COLLIER and HOWARD C JACKSON Ann  
Arbor, Mich  
Does Ether Narcosis Protect from Anaphylactic Shock (Lan-  
tern Demonstration)?  
AMOS R KOONTZ and RICHARD T SHACKELFORD, Balti-  
more  
Arteriography and Arterial Therapeutics  
REYNALDO DOS SANTOS, Lisbon, Portugal

## SECTION ON OBSTETRICS AND GYNECOLOGY

MEETS IN AUDITORIUM OF VETERANS' BUILDING,  
CIVIC CENTER

### OFFICERS OF SECTION

Chairman—E D PLASS, Iowa City  
Vice Chairman—HARVEY B MATTHEWS Brooklyn  
Secretary—NORMAN F MILLER, Ann Arbor, Mich  
Executive Committee—Lyle G McNEILE Los Angeles,  
M PIERCE RUCKER, Richmond Va, E D PLASS Iowa City

Wednesday, June 15—2 p m

The Relation Between Blood Plasma Proteins and Toxemias  
of Pregnancy A Preliminary Report (Lantern Demon-  
stration)  
EVA F DODGE Montgomery, Ala, and THOMAS T  
FROST, Winston-Salem N C  
Discussion to be opened by THOMAS ADDIS San Francisco  
Toxemias of Pregnancy Cause and Treatment (Lantern Demon-  
stration) FRANCIS L MCPHAIL Great Falls Mont  
Discussion to be opened by P J CARTER New Orleans  
and Lyle G McNEILE Los Angeles  
Cyanosis of the Newborn and Associated Cerebral Injury (Lan-  
tern Demonstration) FREDERIC SCHREIDER Detroit  
Discussion to be opened by C B COLVILLE, Los Angeles,  
and J C LITZENBERG Minneapolis  
Study of Placental Site and Intra Uterine Relationship by  
Original Method of Amniotic Sac Distention Report of  
400 Cases (Lantern Demonstration)  
RICHARD TORPIN Augusta Ga  
Discussion to be opened by L A CALKINS Kansas City,  
Mo and JAMES R REINBERGER Memphis Tenn

Study of the Pelvic Joints During Pregnancy and Labor (Lan-  
tern Demonstration) DONALD J THORP Seattle  
Discussion to be opened by ALICE F MAXWELL, San  
Francisco, and E J KRAHULIK Los Angeles  
Pregnancy and Tuberculosis (Lantern Demonstration)  
EMIL BOGEN and JANE SKILLEN, Olive View, Calif  
Discussion to be opened by J C IRWIN, Los Angeles, and  
E L KING New Orleans  
Motion Picture Birth of a Baby

Thursday, June 16—2 p m

The Cervix Uteri in Obstetrics and Gynecology (Lantern  
Demonstration) JOSEPH L BAER Chicago  
Discussion to be opened by EDWARD A SCHUMANN,  
Philadelphia, and GEORGE W KOSMAK, New York  
Consideration of Good and Bad Results in the Treatment of  
Chronic Cervicitis (Lantern Demonstration)  
WILLIAM T BLACK, Memphis, Tenn  
Discussion to be opened by R G CRAIG, San Francisco,  
and H B MATTHEWS, Brooklyn  
The Management of Tuberculosis of the Cervix Uteri (Lantern  
Demonstration) DONALD C COLLINS, Los Angeles  
Discussion to be opened by L A ENGE, San Francisco  
Color Photography of the Uterine Cervix (Lantern Demonstra-  
tion) CHARLES EDWIN GALLOWAY, Evanston, Ill  
Discussion to be opened by JOHN VRUWINK, Los Angeles,  
and J M BRUNER, Des Moines Iowa  
Uterine Myomectomy Analysis of Indications and Results in  
500 Cases (Lantern Demonstration)  
VIRGIL S COUNSELLER and ROBERT E BEDARD, Rochester,  
Minn  
Discussion to be opened by L C SCHEFFEY, Philadelphia,  
and FRANK W LYNCH, San Francisco  
Chairman's Address Undergraduate Obstetric Teaching  
E D PLASS, Iowa City

Friday, June 17—2 p m

Election of Officers  
Anatomic Factors in the Pathogenesis and Treatment of Ure-  
throcele and Cystocele (Lantern Demonstration)  
ARTHUR H CURTIS, Chicago  
Discussion to be opened by W T DANAREUTHER, New  
York and G D ROYSTON, St Louis  
Practical Deductions from the Management of 225 Cases of  
Infection of the Immature Vagina (Lantern Demonstra-  
tion) GOODRICH C SCHAUFFLER Portland Ore  
Discussion to be opened by W O JOHNSON, Louisville,  
Ky, and C F FLUHMANN, San Francisco  
Experimental Study of Behavior of Sulfanilamide (Lantern  
Demonstration)  
FRED L ADAIR, H CLOSE HESSELTINE and LUCILE HAG,  
Chicago  
Discussion to be opened by H O CALVERY, Washington,  
D C and J P PRATT, Detroit  
The Action of Measured Doses of 800 Kilovolt Roentgen Rays  
on Carcinomas of the Uterine Cervix  
HENRY SCHMITZ, HERBERT E SCHMITZ and JOHN  
FRANCIS SHEEHAN, Chicago  
Discussion to be opened by D G MORTON and ROBERT  
R NEWELL, San Francisco

## SECTION ON OPHTHALMOLOGY

MEETS IN ROOM - 3 VETERANS BUILDING CIVIC CENTER

### OFFICERS OF SECTION

Chairman—PARKER HEATH Detroit  
Vice Chairman—A RAY IRVINE, Los Angeles  
Secretary—FERRICK VAIL Cincinnati  
Executive Committee—JOHN GREFF St Louis, WILLIAM L  
BENEDICT Rochester Minn PARKER HEATH, Detroit

Wednesday, June 15—9 a m

Chairman's Address PARKER HEATH Detroit  
The Nature of the Filtrable Agent of Trachoma (Lantern  
Demonstration)  
PHILIPS THOMPSON, New York and POLI RICHARDS  
Albuquerque N M  
Discussion to be opened by EDWIN WILLIAM SCHULTZ  
Santa Clara Calif and HARRY S GRADY Chicago  
Scleromalacia Perforans Report of a Case Studied Clinically  
Bacteriologically and Histologically (Lantern Demon-  
stration)  
FREDERICK H VEPHOFF and MERRILL J KILG Boston  
Discussion to be opened by FREDERICK A KJFILLE, Port-  
land Ore, and SAMUEL P OAST, New York

- Histopathology in Amblyopia Following Tryparsamide Therapy (Lantern Demonstration) P J LEINFELDER, Iowa City  
Discussion to be opened by FREDERICK C CORDES and MAX FINE, San Francisco
- Pathogenesis of Syphilitic Optic Atrophy (Lantern Demonstration) SAMUEL H EPSTEIN, Boston  
Discussion to be opened by M PURMAN DORMAN, Seattle, and HAROLD GIFFORD, Omaha
- Ptosis Correction by Attachment of Orbicularis Strips to Superior Rectus (Lantern Demonstration) JOHN M WHEELER, New York  
Discussion to be opened by JOHN O McREYNOLDS, Dallas, Texas

#### Thursday, June 16—9 a m

- Theory and Use of Cross Cylinders EDWARD JACKSON, Denver  
Discussion to be opened by CHARLES K MILLS McAlester, Okla., and WILLIAM H CRISP, Denver
- Visual Acuity Its Relation to Form Sense and the Application of this Relationship to Medicolegal Problems (Lantern Demonstration) ALBERT C SNELL, Rochester N Y  
Discussion to be opened by D F HARBRIDGE, Phoenix, Ariz., and RALPH O RICHENER, Memphis, Tenn
- Vascular Changes in the Eyes in Experimental Hypertension (Lantern Demonstration) JOHN E L KEYES and HARRY GOLDBLATT, Cleveland  
Discussion to be opened by ARTHUR J BEDELL, Albany, N Y, and WILLIAM L BENEDICT, Rochester, Minn
- Fusional Movements Role of Peripheral Retinal Stimuli (Lantern Demonstration) HERMAN BURIAN, Hanover, N H  
Discussion to be opened by AVERY M HICKS, San Francisco, and WALTER H FINA, Minneapolis
- Postoperative Complication of Cataract Operations (Lantern Demonstration) CONRAD BERENS and DONALD W BOGART, New York  
Discussion to be opened by WATSON W GAILEY JR, Bloomington, Ill and JOSEPH L MCCOOL, San Francisco

#### Demonstration Session Exhibition of New Instruments and Appliances

- Among those demonstrating will be
- Demonstration of New Electrical Unit for Separated Retina Work CLIFFORD B WALKER, Los Angeles
- Operative Procedure for Shallow Chamber Type of Glaucoma (Lantern Demonstration) OTTO BARKAN, San Francisco
- Sulfanilamide Treatment of Trachoma Preliminary Report FRED LOE, Rosebud S D

#### Friday, June 17—9 a m

- Executive Session
- Election of Officers
- Vascular Obliteration for Various Types of Keratitis with Special Reference to the Nutrition of Corneal Epithelium (Lantern Demonstration) TRYGVE GUNDERSEN, Boston  
Discussion to be opened by ALBERT D RUEDEMANN, Cleveland and CHARLES A BAHN, New Orleans
- Mixed Tumors of the Lacrimal Gland (Lantern Demonstration) THEODORE E SANDERS, St Louis  
Discussion to be opened by ADOLPH O PFINGST, Louisville, Ky., and GEORGINA DIORAK-THEOBALD, Oak Park, Ill
- Vernal Conjunctivitis (Lantern Demonstration) HAROLD F WHALMAN, Los Angeles  
Discussion to be opened by M N BEIGELMAN, Los Angeles, and ALBERT N LEVINE, Kansas City Mo
- Treatment Cancer of the Eyelids (Lantern Demonstration) GEORGE S SHAPP, Pasadena Calif  
Discussion to be opened by EVERETT L GOAR, Houston Texas, and DOHRMANN K FISCHER, San Francisco

#### SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

MEET IN ROOM 223 YETTERMAN BUILDING CIVIC CENTER  
OFFICERS OF SECTION

- Chairman—GORDON B NEW, Rochester Minn  
Vice Chairman—C COULTER CHARLTON, Atlantic City N J  
Secretary—LEROY A SCHALL, Boston  
Executive Committee—RALPH A FENTON, Portland Ore  
ROBERT F RIDPATH, Philadelphia, GORDON B NEW, Rochester, Minn

#### Wednesday, June 15—2 p m

- Leprosy of the Upper Respiratory Tract (Lantern Demonstration) FORREST J PINKERTON, Honolulu Hawaii  
Discussion to be opened by R W BURLINGAME and HOWARD MORROW, San Francisco
- Recent Developments in Audiometers and Hearing Aids (Lantern Demonstration) AUSTIN A HAYDEN, Chicago
- Audiometry in Routine Practice (Lantern Demonstration) ISAAC H JONES and VERN O KNUSEN, Los Angeles  
Discussion on papers of DR HAYDEN and DR JONES and KNUSEN to be opened by WILLIAM P WHERRY, Omaha, HORACE NEWHART, Minneapolis, and HAROLD A FLETCHER, San Francisco
- Fungous Infections of the External Ear (Lantern Demonstration) EDWARD J WHALEN, Hartford, Conn  
Discussion to be opened by WILLIAM D GILL, San Antonio, Texas, and MILLARD F ARBUCKLE, St Louis
- Osteomas of the Frontal-Ethmoid and Mastoid Process (Lantern Demonstration) BERT E HEMPSTEAD, Rochester, Minn  
Discussion to be opened by GEORGE H WILLIAMS, San Rafael, Calif, and THOMAS E CARMODY, Denver

#### Thursday, June 16—2 p m

- Chairman's Address Benign Tumors of the Larynx, a Study of 716 Cases (Lantern Demonstration) GORDON B NEW, Rochester, Minn
- Cancer of the Larynx Analysis of Results of 800 Cases (Lantern Demonstration) CHEVALIER JACKSON and CHEVALIER L JACKSON, Philadelphia  
Discussion to be opened by WAITMAN F ZINN, Baltimore, MAX CUTLER, Chicago, and SIMON JESBERG, Los Angeles
- Deviations from the Normal Hemogram After Chilling Clinical Significance in Infection of Upper Respiratory Tract (Lantern Demonstration) H MARSHALL TAYLOR, Jacksonville, Fla  
Discussion to be opened by EDWARD CECIL SFWALL, San Francisco, JOHN J SHEA, Memphis, Tenn, and BURT R SHURLY, Detroit
- The Clinical Significance of Recent Work on Apneumohematosis (Lantern Demonstration) E G GALBRAITH, Toledo, Ohio  
Discussion to be opened by CHEVALIER JACKSON, Philadelphia J MACKENZIE BROWN, Los Angeles and W B CHAMBERLIN, Cleveland
- Malignant Disease of the External Ear, with a Report of Eight Cases (Lantern Demonstration) FRANK R SPENCER, Boulder, Colo  
Discussion to be opened by H P Mosher, Boston, and GORDON B NEW, Rochester, Minn
- Benign Granuloma of the Nose (So Called Sarcoid) Report of a Case (Lantern Demonstration) FRANK B KISTNER and THOMAS D ROBERTSON, Portland Ore  
Discussion to be opened by MATTHEW N HOSMER, San Francisco, and JOHN E WIRTH, Seattle

#### Friday, June 17—2 p m

- Election of Officers
- The Petrous Apex of the Temporal Bone and Its Relations (Lantern Demonstration) WILLIAM J MELLINGER, Santa Barbara, Calif  
Discussion to be opened by J PARSONS SHAEFFER, Philadelphia, OLOF LARSELL, Portland Ore and HENRY J PROFANT, Santa Barbara, Calif
- Malignancy of the Nasopharynx (Lantern Demonstration) DUDMAN H BROWNELL and I JEPOME HAUSER, Ann Arbor, Mich  
Discussion to be opened by JOSEPH C BREK, Chicago and JOHN H CHILDREY, San Francisco
- Surgical Pathology of Sinusitis (Lantern Demonstration) HERMAN Z SEMFON, Los Angeles  
Discussion to be opened by ROY F NELSON, Oakland Calif, and RAYMOND O DART, San Francisco
- Cerebrospinal Rhinorrhea with a Report of a Case Cured by Operation (Lantern Demonstration) DAVID R HUBER, San Diego, Calif  
Discussion to be opened by HOWARD C NAEFFER, San Francisco, WELLS P LACROIX, Newark N J, and CHESTER H BOWEN, Los Angeles
- Atrophic Rhinitis (Lantern Demonstration) C C CHASITO, Atlantic City N J  
Discussion to be opened by FRANK B KISTNER, Portland Ore, and ROBERT F RIDPATH, Philadelphia

## SECTION ON PEDIATRICS

MEETS IN AUDITORIUM OF OPERA HOUSE CIVIC CENTER

### OFFICERS OF SECTION

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Executive Committee—HORTON R CASPARIS Nashville Tenn,  
RALPH M TYSON, Philadelphia, CLIFFORD SWEET Oakland,  
Calif

Wednesday, June 15—9 a m

Chairman's Address The Opportunities in Pediatric Practice  
CLIFFORD SWEET Oakland Calif  
Recent Studies in Experimental Lobar Pneumonia (Lantern  
Demonstration) OSWALD H ROBERTSON, Chicago  
Treatment of Pertussis (Lantern Demonstration)  
JAMES A CONNER, Chicago  
Discussion to be opened by JOHN M FRAWLEY, Fresno,  
Calif, and JOHN J MILLER JR, San Francisco  
Further Observations on the Use of Sulfanilamide or Its  
Derivatives in the Treatment of Certain Infectious Dis-  
eases (Lantern Demonstration)  
PERRIN H LONG and ELEANOR A BLISS, Baltimore  
Discussion to be opened by FRANCIS SCOTT SMITH San  
Francisco, and THOMAS B COOLEY Detroit  
Diagnosis and Treatment of Urinary Infections (Lantern  
Demonstration)  
HENRY F HELMHOLZ, Rochester Minn  
Discussion to be opened by WILLIAM P HERBST, Wash-  
ington, D C, and WILLIAM PALMER LUCAS, San  
Francisco  
Onset and Natural Progress of Allergy in Childhood (Lantern  
Demonstration) BRET RATNER New York  
Discussion to be opened by MILTON B COHEN, Cleveland

Thursday, June 16—9 a m

JOINT MEETING WITH SECTION ON RADIOLOGY

Sinus Disease in Children (Lantern Demonstration)  
W WALTER WASSON, Denver  
Sinus Treatment in Children (Lantern Demonstration)  
EDWARD C MITCHELL, Memphis, Tenn  
Ephedrine in a Physiologic Vehicle and Lateral Head Low  
Posture in Treatment of the Nose and Sinuses (Lantern  
and Motion Picture Demonstration)  
SIDNEY N PARKINSON, Oakland Calif  
Discussion to be opened by JOHN J SHEA Memphis  
Tenn  
Diagnosis and Treatment of Thymus Disease with X-Rays  
(Lantern Demonstration)  
CLAUDE K HASLEY Detroit  
Experimental Phases of the Thymus Problem (Lantern and  
Motion Picture Demonstration)  
L G ROWNTREE and N H EINHORN Philadelphia  
Thymus Problem in Children (Lantern Demonstration)  
A GRAENE MITCHELL Cincinnati  
Discussion to be opened by EDITH BOYD Minneapolis

Friday, June 17—9 a m

Election of Officers  
Levels of Control in the Management of Diabetes Mellitus  
(Lantern Demonstration)  
ROBERT L JACKSON and J D BOYD, Iowa City  
Discussion to be opened by IRVINE McQUARRIE Min-  
neapolis and PERCIVAL ALLEN GRAY JR Santa Bar-  
bara, Calif  
A Criticism of Present Day Newborn Nursery Practice  
MANDEL L SPIVEK Chicago  
Discussion to be opened by ERNEST WOLFF San Fran-  
cisco, and L HOWARD SMITH Portland Ore  
Should the Tuberculosis Problem in Children be the Respon-  
sibility of the Health Officer or the Pediatrician?  
HORTON R CASPARIS, Nashville Tenn  
Discussion to be opened by FRANKLIN P GENGEBACH  
Denver, and V W SPICKARD Seattle  
Allergy of Childhood Prophylaxis, Early Diagnosis and  
Treatment W AMERSE McGEE Richmond Va  
Discussion to be opened by GEORGE PINESS Los Angeles  
and MARCARET M NICHOLSON Washington D C  
Hematologic Indexes in Normal and Anemic Infants and Chil-  
dren (Lantern Demonstration)  
KATSUJI KATO Chicago  
Discussion to be opened by EDWIN E O-GOOD Portland  
Ore and RUSSELL L HADEN Cleveland

Clinical Effects of Whole Adrenal Gland by Mouth (Lantern  
Demonstration) ORVILLE E BARBOUR, Peoria, Ill  
Discussion to be opened by E KOST SHELTON, Los  
Angeles, and HANS LISSER, San Francisco

## SECTION ON PHARMACOLOGY AND THERAPEUTICS

MEETS IN ROOM 1 VETERANS BUILDING CIVIC CENTER

### OFFICERS OF SECTION

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Executive Committee—CHAUNCEY D LEAKE, San Francisco,  
N C GILBERT, Chicago, RUSSELL L HADEN, Cleveland

Wednesday, June 15—9 a m

The Use of Crystalline Insulin in the Treatment of Patients  
with Severe Diabetes (Lantern Demonstration)  
SAMUEL S ALTSCHULER, Detroit  
Histone Insulin and Allied Insulin Compounds (Lantern Demon-  
stration)  
PERCIVAL ALLEN GRAY JR, FRITZ EMIL BISCHOFF and  
W D SANSUM, Santa Barbara, Calif  
Discussion to be opened by H CLARE SHEPHERDSON, San  
Francisco  
The Treatment of Pellagra by Means of Nicotinic Acid (Lantern  
Demonstration)  
TOM DOUGLAS SPIES and WILLIAM B BEAN, Cincin-  
nati, and ROBERT E STONE, Birmingham, Ala  
Discussion to be opened by THOMAS T MACKIE, New  
York  
Drugs Acting on the Autonomic Nervous System Phenyl and  
Substituted Phenyl Alkylamines (Lantern Demonstration)  
GORDON A ALLES, Los Angeles  
Discussion to be opened by CLINTON H THIENES and  
M H NATHANSON Los Angeles  
The Choice of a Sympathetic Stimulant for Treating Abnormal  
Circulatory States (Lantern Demonstration)  
M L TANTER, San Francisco  
Discussion to be opened by DAVID A RYLAND, San  
Francisco  
Visualization of the Pulmonary Circulation in Man by Means  
of Peripheral Intravenous Injection (Lantern Demonstra-  
tion) GEORGE P ROBB and ISRAEL STEINBERG, New York  
Discussion to be opened by EDGAR V ALLEN, Rochester,  
Minn

Thursday, June 16—9 a m

### SYMPOSIUM ON BLOOD DYSCRASIAS

A Symposium on Blood Dyscrasias Is Also Being Presented  
on Thursday Afternoon Before the Section on  
Pathology and Physiology  
Chairman's Address Historical Aspects of the Use of Iron  
and Liver in the Treatment of Anemia  
RUSSELL L HADEN, Cleveland  
The Culture of Human Marrow as an Aid in the Evaluation  
of Therapeutic Agents (Lantern Demonstration)  
EDWIN E OSGOOD Portland, Ore  
The Treatment of Pathologic Hemorrhage (Lantern Demon-  
stration) HAROLD W JONES, Philadelphia  
The Treatment of Thrombocytopenic Purpura  
NATHAN ROSENTHAL, New York  
The Treatment of Pernicious Anemia  
WILLIAM P MURPHY, Boston  
The Treatment of Iron Deficiency Anemias (Lantern Demon-  
stration)  
W M FOWLER and ADELAIDE P BARER, Iowa City

Friday, June 17—9 a m

### Election of Officers

Sodium Chloride Tolerance in Chronic Nephritis with Some  
Observations on Potassium and Sulfate Ions (Lantern  
Demonstration) M HERBERT BARKER Chicago  
Discussion to be opened by THOMAS ANDIS San Fran-  
cisco and MYRON PRINZNIFFAL, Los Angeles  
Chronic Effects of Ingested Lead and Arsenic (Lantern Demon-  
stration) HERBERT O CALVERY Washington D C  
Discussion to be opened by FLOYD DELLOS San Francisco,  
ERWIN E NELSON New Orleans and P J HANZLITZ,  
San Francisco  
The Evaluation of Drugs Commonly Employed as Diagnostic  
Aids in Clinical Medicine  
S R METTIEF and CHAUNCEY D LEAKE San Francisco  
Discussion to be opened by ARTHUR L PROMMER San  
Francisco

The Use of Serum in the Higher Types of Pneumonia (Lantern Demonstration)

NORMAN H. PLUMMER, New York

Discussion to be opened by RUSSELL L. CECIL, New York  
The Use of Adrenal Hormones in the Treatment of Asthma, Asthma and Tuberculosis (Lantern Demonstration)

F. M. POTTENGER SR., Monrovia, Calif.

Further Clinical Observations on Therapeutic Effectiveness and Toxicity of Sulfanilamide and Several Related Compounds (Lantern Demonstration)

E. G. BANNICK, A. E. BROWN and F. P. FOSTER, Rochester, Minn.

Discussion to be opened by DWIGHT L. WILBUR, San Francisco, and EDWIN E. OSGOOD, Portland, Ore.

## SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN ROOM 1 VETERANS BUILDING CIVIL CENTER

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Vice Chairman—MAURICE B. VISSCHER, Minneapolis

Secretary—J. J. MOORE, Chicago

Executive Committee—HENRY C. SWEANY, Chicago, W. E. GARREY, Nashville, Tenn., ROY R. KRACKE, Emory University, Ga.

Wednesday, June 15—2 p. m.

Pathology of the Placenta, with Particular Reference to Infarcts and Their Relation to the Toxemias of Pregnancy (Lantern Demonstration)

R. A. BARTHOLOMEW, Atlanta, Ga.

Arterial Occlusions with Aseptic Necrosis of Bones (Lantern Demonstration)

EDWIN F. HIRSCH, Chicago

Ulcerative Gastritis and Residual Lesions (Lantern Demonstration)

H. E. ROBERTSON, Rochester, Minn.

The Etiology and Pathogenesis of Alcoholic Cirrhosis of the Liver (Lantern Demonstration)

C. L. CONNOR, San Francisco

Regulation of the Serum Calcium Level During Pregnancy (Lantern Demonstration)

MEYER BODANSKY, Galveston, Texas

Studies on Hexyl Chloro-m-Cresol and Other Carbo-cyclic Antiseptics

F. W. HARTMAN and VICTOR SCHELLING, Detroit

Annual Variations in Seasonal Aspects of Mold Allergy. A Clinical and Atmospheric Study of Over Three Years (Lantern Demonstration)

SAMUEL M. FEINBERG, Chicago, and O. C. DURHAM, North Chicago, Ill.

Thursday, June 16—2 p. m.

### SYMPOSIUM ON BLOOD DYSCRASIAS

A Symposium on Blood Dyscrasias Is Also Being Presented on Thursday Morning Before the Section on Pharmacology and Therapeutics

Chairman's Address: Relation of Drug Therapy to Neutropenic States. ROY R. KRACKE, Emory University, Ga.

Experimental Production of Agranulocytosis in Dogs (Lantern Demonstration)

E. M. BUTT, Los Angeles

Leukemoid Reactions (Lantern Demonstration)

FRANK J. HECK, Rochester, Minn.

Red Cell Dimensions in Familial Hemolytic Anemia with Particular Reference to Atypical Cases (Lantern Demonstration)

JOSEPH M. HILL, Dallas, Texas

The Erythrocyte in Sickle Cell Anemia (Lantern Demonstration)

L. W. DIGGS, Memphis, Tenn.

A Method for Differentiation of Blood Groups A<sub>1</sub> and A<sub>2</sub> (Lantern Demonstration)

ISRAEL DAVIDSON, Chicago

The Gordon Test for Hodgkin's Disease. A Reaction to Eosinophils

JAMES B. McNAUGHT, San Francisco

Friday, June 17—2 p. m.

### Election of Officers

Incidence of Primary Bronchogenic Carcinoma

PHILIP B. MATZ, Washington, D. C.

Primary Carcinoma of the Ureter

PAUL A. FERRIER and ALVIN G. FOORD, Pasadena, Calif.

Solid Ovarian Tumors (Lantern Demonstration)

HARRY C. SCHWEISSER, Memphis, Tenn.

Cytology of the Skin of Mice During Application of Carcinogenic Agents, Methylcholanthrene and Cholanthrene (Lantern Demonstration)

ROBERT C. PAGE, Tuckahoe, N. Y.

X-Ray Diffraction Analysis as Applied in Pneumococci (Lantern Demonstration)

HENRY C. SWEANY, Chicago

The Effects of Tuberculo-protein

A Quantitative Study (Lantern Demonstration)

HARRY J. CORPER, Denver

## SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN ASSEMBLY HALL, EMPIRE HOTEL

### OFFICERS OF SECTION

Chairman—SAMUEL D. INGHAM, Los Angeles

Vice Chairman—GROVES B. SMITH, Godfrey, Ill.

Secretary—PAUL C. BUCY, Chicago

Executive Committee—HANS H. F. REESE, Madison, Wis., HENRY R. VIETS, Boston, SAMUEL D. INGHAM, Los Angeles

Wednesday, June 15—9 a. m.

A dinner for the section will be held on Wednesday, June 15 at Louis' Fashion Restaurant

Marriage Among the Mentally Retarded (Lantern Demonstration)

L. H. ZIEGLER, Wauwatosa, Wis., and C. P. SJELMO, Boston

Discussion to be opened by DWIGHT L. WILBUR, San Francisco and LAWRENCE KOLB, Lexington, Ky.

The Psychoanalytic Treatment of Chronic Alcoholic Addiction in a Sanatorium (Lantern Demonstration)

ROBERT P. KNIGHT, Topka, Kan.

Discussion to be opened by F. G. EBAUGH, Denver

Chairman's Address: Some Neurologic Aspects of Psychiatry

SAMUEL D. INGHAM, Los Angeles

A Follow-Up Report of a Human Being with Bilateral Frontal Lobectomy: Comparison with Cases of Unilateral Lobectomy (Lantern Demonstration)

RICHARD M. BRICKNER, New York

Discussion to be opened by W. F. SCHALLER, San Francisco

### INSULIN SHOCK AND METRAZOL THERAPY

Clinical Observations and Results with Hypoglycemia and Convulsive Therapy in Schizophrenia (Lantern Demonstration)

HANS H. F. REESE, Madison, Wis.

Treatment of the Psychoses with Hypoglycemia and Induced Convulsions (Lantern Demonstration)

RICHARD H. YOUNG and G. ALEXANDER YOUNG, Omaha

Discussion to be opened by A. A. LOW, Chicago, and TITUS H. HARRIS, Galveston, Texas

Thursday, June 16—9 a. m.

The Cerebellum: A New Interpretation (Lantern Demonstration)

OLOF LARSELL, Portland, Ore.

Discussion to be opened by FREDERICK L. REICHERT and WEBB E. HAYMAKER, San Francisco

The Present Status of a Patient Who Has Had the Right Cerebral Hemisphere Removed (Motion Picture Demonstration)

K. G. McKENZIE, Toronto, Canada

Discussion to be opened by MAX M. PLET, Ann Arbor, Mich., and HENRY R. VIETS, Boston

### BRAIN TUMORS

Cerebral Pseudo-Tumor and Pseudo Abscess (Lantern Demonstration)

W. J. GARDNER, Cleveland

Discussion to be opened by HARRY WILKINS, Oklahoma City, and R. B. RAY, Los Angeles

Intracranial Arteriovenous Varices with Brief Report of Ten Cases of Different Types and Special Reference to Treatment by Ligation (Lantern Demonstration)

R. E. SEYMERS, Memphis, Tenn.

Discussion to be opened by HALE A. HAVEN, Seattle, and E. B. TOWSE, San Francisco

Tumors of the Fourth Ventricle (Lantern Demonstration)

W. MCK. CRAIG and J. W. KER. O'HAN, Rochester, Minn.

Brain Tumors in Infancy and Childhood

D. N. BUCHANAN and PERCIVAL BAILEY, Chicago

Discussion on papers of DRS. CRAIG and KER. O'HAN and DRS. BUCHANAN and BAILEY to be opened by H. C. NAFFZIGER, San Francisco, and F. R. TEACH, Kansas City, Mo.

Friday, June 17—9 a. m.

### Election of Officers

Horse Serum Neuritis (Lantern and Motion Picture Demonstration)

A. E. BRITTON, Philadelphia

Discussion to be opened by GEORGE WILSON, Philadelphia, and WALTER FREEMAN, Washington, D. C.



- The Treatment of Acute Infections of the Central Nervous System with Sulfanilamide (Lantern Demonstration)  
JOSEPHINE B NEAL New York  
Discussion to be opened by R CANNON ELEY, Boston, and ARCHIBALD L HOYNE, Chicago
- Chronic Adhesive Spinal Arachnoiditis A Clinical and Pathologic Study (Lantern Demonstration)  
R P MACKAY Chicago  
Discussion to be opened by JOHN B DOYLE and J M NIELSEN, Los Angeles
- Epilepsy and the Carotid Sinus (Lantern Demonstration)  
WILDER G PENFIELD and H M KEITH, Montreal Canada  
Discussion to be opened by HENRY W WOLTMAN, Rochester, Minn
- Clinical Experiences with Diphenylhydantoin A New Anticonvulsant Drug (Lantern Demonstration)  
H H MERRITT and T J PUTNAM, Boston  
Discussion to be opened by EUGENE ZISKIND Los Angeles, and O P KIMBALL, Cleveland
- Results of Removal of Cerebral Cortical Scars  
WILLIAM J GERMAN JR, New Haven Conn  
Discussion to be opened by TEMPLE S FAY, Philadelphia, and R GLEN SPURLING Louisville, Ky

## SECTION ON DERMATOLOGY AND SYPHILOLOGY

MEETS IN AUDITORIUM A, EMPIRE HOTEL

### OFFICERS OF SECTION

- Chairman—JOSEPH V KLAUDER, Philadelphia  
Vice Chairman—H J TEMPLETON, Oakland, Calif  
Secretary—BEDFORD SHELMIER, Dallas, Texas  
Executive Committee—HARRY R FOERSTER, Milwaukee, PAUL A O'LEARY, Rochester, Minn, JOSEPH V KLAUDER, Philadelphia

Wednesday, June 15—9 a m

### SYMPOSIUM ON OCCUPATIONAL DERMATOSES

- Chairman's Address Erysipeloid as an Occupational Disease  
JOSEPH V KLAUDER, Philadelphia
- Occupational Dermatoses An Educational Program (Lantern Demonstration)  
C GUY LANE, Boston
- Incidence of Occupational Dermatoses and Their Causes in the Basic Industries  
LOUIS SCHWARTZ, New York
- Industrial Dermatoses Remarks on Criteria for Diagnosis and on Future Immunologic Methods of Prophylaxis (Lantern Demonstration)  
MARION B SULZBERGER, New York and CLARK W FINNERUD, Chicago
- The Practical Aspect of the Prevention of Industrial Dermatoses Elimination of Hazards and Protective Methods (Lantern Demonstration)  
EARL D OSBORNE and JAMES W JORDON, Buffalo
- Analysis of Claims in Industrial Dermatoses  
JOHN G DOWNING, Boston
- Some Medicolegal Aspects of Industrial Dermatoses  
HARRY R FOERSTER Milwaukee
- Discussion on papers of Dr LANE, Dr SCHWARTZ, Dr SULZBERGER and FINNERUD, Drs OSBORNE and JORDON, Dr DOWNING and Dr FOERSTER to be opened by C C DENNIE, Kansas City Mo, CLEVELAND J WHITE Chicago, and HIRAM E MILLER, San Francisco

Thursday, June 16—9 a m

- Are There Paradoxical Serum Reactions in Syphilis (Lantern Demonstration)?  
REUBEN L KAHN Ann Arbor Mich  
Discussion to be opened by FRDERICK G NOVY JR Oakland Calif
- The Present Status of Acetarsone Therapy in Prenatal Syphilis (Lantern Demonstration)  
DONALD M PILLSBURY and H HARRIS PERLMAN Philadelphia  
Discussion to be opened by JOSEPH YAMPOLSKY Atlanta Ga
- The Treatment of Congenital Syphilis with Mapharsen  
JAMES K. HOWLES New Orleans  
Discussion to be opened by JOHN E RAUSCHKOLB, Cleveland
- Acetarsone Orally in the Treatment of Acquired Syphilis in Adults  
HARRY M ROBINSON and HARRY M ROBINSON JR Baltimore  
Discussion to be opened by CHARLES R REIN New York

- High Antisyphilitic Level of Bismuth in the Blood Stream Method of Its Rapid Achievement and of Its Prolongation (Lantern Demonstration)  
TORALD H SOLLMANN HAROLD N COLE, KATHARINE I HENDERSON, GARRETT A COOPER, W R LOVE and W F SCHWARTZ Cleveland  
Discussion to be opened by GEORGE V KULCHAR, San Francisco
- Neurosyphilis in the Negro Spinal Fluid Manifestations in Untreated and Treated Cases (Lantern Demonstration)  
SAMUEL GOLDBLATT, Cincinnati  
Discussion to be opened by MARQUE O NELSON, Tulsa, Okla
- Treatment of Tabes Dorsalis Observations on Nine Hundred Patients (Lantern Demonstration)  
PAUL A O'LEARY, Rochester Minn, JOSEPH EARLE MOORE, Baltimore, JOHN H STOKES, Philadelphia, UDO J WILE, Ann Arbor Mich, and THOMAS PARRAN, R A VONDERLEHR and LIDA J USILTON, Washington, D C  
Discussion to be opened by WALTER FREEMAN, Washington D C

Friday, June 17—9 a m

### Election of Officers

- Hydroadenitis Suppurativa (Verneuil) (Lantern Demonstration)  
HENRY A BRUNSTING, Toledo, Ohio  
Discussion to be opened by WILLIAM H GOECKERMAN, Los Angeles
- Tumor-like Keratoses Case Report (Lantern Demonstration)  
DUNCAN O POTH, San Antonio, Texas  
Discussion to be opened by H J TEMPLETON, Oakland, Calif
- Acne Urticata Polycythemia with Positive Oxidase Reaction in Sections and in Lesions in Situ (Lantern Demonstration)  
FRED D WEIDMAN, Philadelphia  
Discussion to be opened by J GARDNER HOPKINS, New York
- Cholesterol Studies and Low Fat Diet in Psoriasis (Lantern Demonstration)  
JOHN F MADDEN, St Paul  
Discussion to be opened by RICHARD J BAILEY, Spokane, Wash
- Sensitiveness of the Skin to X-Rays Following the Ingestion of Arsenic (Lantern Demonstration)  
CARL W LAYTON and HARRY A CUMMING, Minneapolis  
Discussion to be opened by W H GUY, Pittsburgh
- The Toxic Skin Manifestations Following Sulfanilamide Therapy (Lantern Demonstration)  
J W TEDDER, New Orleans  
Discussion to be opened by MARCUS R CARO, Chicago

## SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

MEETS IN CITY HEALTH BUILDING CIVIC CENTER

### OFFICERS OF SECTION

- Chairman—ROBERT T LEGGE, Berkeley, Calif  
Vice Chairman—CHARLES V CRASTER, Newark, N J  
Secretary—I C RIGGIN, Richmond, Va  
Executive Committee—R. R SAYERS, Washington, D C L D BRISTOL New York, ROBERT T LEGGE Berkeley, Calif

Wednesday, June 15—2 p m

- Chairman's Address Industrial Medicine of Tomorrow  
ROBERT T LEGGE Berkeley, Calif
- Public Health Aspects of Industrial Hygiene  
R R SAYERS, Washington D C  
Discussion to be opened by L D BRISTOL, New York
- Industrial Medicine's Challenge to the Internist  
R T JOHNSTONE, Los Angeles  
Discussion to be opened by LEOPOLD BRAHDI, New York
- Medical Supervision of Benzene Plant Workers (Lantern Demonstration)  
A G KAMMER Indiana Harbor, East Chicago Ind  
Discussion to be opened by PETER K. KNOEFFEL, Louisville Ky
- Noise and Its Injurious Effects on Human Beings (Lantern Demonstration)  
CAPEY P MCCORD Detroit  
Discussion to be opened by VER O KNUDSE and NORMAN A WATSON Los Angeles

Thursday, June 16—2 p m

Maryland's Program for the Control of Tuberculosis

R H RILEY, Baltimore

Discussion to be opened by W P SHEPARD, San Francisco

Hematogenous Tuberculosis and Silicosis (Lantern Demonstration)

LOUIS COHEN, Philadelphia

Discussion to be opened by A J LANZA, New York

Studies on the Mechanism of Intranasal Infections

CHARLES ARNSTRONG, Washington D C

Discussion to be opened by EDWIN WILLIAM SCHULTZ, Stanford University, Calif

Two and One-Half Years of Pneumonia Control in New York State (Lantern Demonstration)

EDWARD S ROGERS, Albany N Y

Discussion to be opened by PETER IRVING, New York

Cold Vaccines An Evaluation Based on a Controlled Study (Lantern Demonstration)

H S DIEHL, A B BAKER and DONALD W COWAN, Minneapolis

Recent Researches in Nutrition in Relation to Preventive Medicine (Lantern Demonstration)

NINA SIMMONDS, San Francisco

Discussion to be opened by M J ROSENAU, Chapel Hill, N C

Friday, June 17—2 p m

## Election of Officers

Coccidioidomycosis The Preliminary Acute Infection with Fungus Coccidioides (Lantern Demonstration)

ERNEST C DICKSON, San Francisco

Discussion to be opened by K F MEYER, San Francisco

Health of the Migrant W M DICKIE, Berkeley, Calif

Discussion to be opened by MYRNE A GIFFORD, Bakersfield, Calif

The Next Great Battle for Soldiers of Medicine

HENRY A LUCE, Detroit

Discussion to be opened by J N BAKER, Montgomery, Ala

The Contribution of Mental Hygiene to Education on the Elementary Level

JAMES HOULOSE, Long Beach Calif

Discussion to be opened by HERBERT R STOLZ, Oakland Calif

Some Physiologic Concepts in Mental Hygiene

FORREST N ANDERSON, Los Angeles

## SECTION ON UROLOGY

MEETS IN AUDITORIUM A EMPIRE HOTEL

## OFFICERS OF SECTION

Chairman—ALBERT J SCHOLL, Los Angeles

Vice Chairman—GEORGE G REINLE, Oakland, Calif

Secretary—WILLIAM P HERBST, Washington D C

Executive Committee—JOHN H MORRISSEY, New York, HENRY W E WALTHER, New Orleans, ALBERT J SCHOLL, Los Angeles

Wednesday, June 15—2 p m

The Treatment of Testicular Deficiency with Testosterone Propionate (Lantern Demonstration)

E PERRY McCULLAGH, Cleveland

Criteria of Operability in Obstructive Lesions of the Bladder Outlet (Lantern Demonstration)

HAROLD C HABEIN, Rochester Minn

The Treatment of Nongonococcal Infection of the Urinary Tract with Sulfanilamide

ANSON L CLARK, Oklahoma City

Resection of the Superior Hypogastric Plexus and the Sacral Sympathetic Ganglions for the Relief of Bladder Pain (Lantern and Motion Picture Demonstration)

C F SCHROEDER, Wyandotte, Mich, and R E CUMMING, Detroit

Advances in the Technic of Transurethral Prostatectomy (Motion Picture Demonstration)

REED M NESBIT, Ann Arbor Mich

Prostatectomy or Transurethral Prostatic Resection (Lantern Demonstration)?

EDWIN DAVIS, Omaha

Vesical Diverticula (Lantern Demonstration)

ROBERT V DAY and HARRY W MARTIN, Los Angeles

Thursday, June 16—2 p m

The Significance of Roentgenographic Studies of the Urinary Tract During and After Pregnancy (Lantern Demonstration)

STANLEY R WOODRUFF, Jersey City, N J and ARTHUR H MILBERT, New York

Chairman's Address Urologic Conditions Resembling Chronic Glomerulonephritis (Motion Picture Demonstration)

ALBERT J SCHOLL, Los Angeles

The Treatment of Gonorrhea with Sulfanilamide (Lantern Demonstration)

BERNARD SILVER, Los Angeles

Surgical Procedures in the Treatment of Complications in Gonorrhea

JOHN H MORRISSEY, New York

Surgical Indications in Renal Tuberculosis (Lantern Demonstration)

JOHN L EMMETT and JOHN M KIBLER, Rochester, Minn

Cysts of the Kidney (Lantern Demonstration)

GEORGE W FISH, New York

Friday, June 17—2 p m

## Election of Officers

Torsion of the Testicle

JOHN K ORMOND, Detroit

The Problem of Urinary Tract Absorption in Hydronephrosis

DUNCAN M MORISON, Edinburgh, Scotland

Testicular Tumors (Lantern Demonstration)

HUGH CABOT, Rochester, Minn

Surgery of Genito-Urinary Malignancy

HENRY G BUGBEE, New York

Radiation Therapy in the Treatment of Tumors of the Urinary Tract

CLYDE K EMERY, Los Angeles

The Visualization of the Adrenal Glands by Air Injection (Lantern Demonstration)

NORMAN W ROOME, Chicago

## SECTION ON ORTHOPEDIC SURGERY

MEETS IN ASSEMBLY HALL, EMPIRE HOTEL

## OFFICERS OF SECTION

Chairman—JOHN DUNLOP, Pasadena, Calif

Vice Chairman—OSCAR L MILLER, Charlotte, N C

Secretary—ROBERT V FUNSTEN, Charlottesville, Va

Executive Committee—ARTHUR T LEGG, Boston, FLEMING A CHANDLER, Chicago, JOHN DUNLOP, Pasadena, Calif

Wednesday, June 15—2 p m

Synovectomy of the Knee Joint for Chronic Arthritis (Lantern Demonstration)

GEORGE A L INGE, New York

Discussion to be opened by LORING T SWAIN, Boston, and DAVID H KLING, Los Angeles

Spondylolisthesis An Etiologic Factor in Backache (Lantern Demonstration)

HENRY W MEYERDING, Rochester, Minn

Discussion to be opened by SYLVAN L HAAS, San Francisco, and CHARLES LEROY LOWMAN, Los Angeles

Treatment of Fracture-Dislocation of the Spine Associated with Cord Injury (Lantern Demonstration)

C C COLEMAN, Richmond, Va, and J M MEREDITH, University, Va

Discussion to be opened by FREDERIC C BOST, San Francisco and S C BALDWIN, Salt Lake City

Fractures of the Lower End of the Humerus (Lantern Demonstration)

GEORGE J GARCEAU, Indianapolis

Discussion to be opened by J H DORMAN, Dallas, Texas and H W SPIERS, Los Angeles

Fascial Adhesions in Low Back Pain and Arthritis (Lantern Demonstration)

CHARLES MURRAY GRATZ, New York

Discussion to be opened by ARTHUR STEINBERG, Iowa City, and HULFET J WICKOFF, Seattle

Newer Concepts and Methods of Teaching Orthopedic Surgery (Lantern and Motion Picture Demonstration)

PHILIP LEWIS, Chicago

Thursday, June 16—2 p m

Factors to be Considered in Bone Metabolism with Suggestion as to the Chemical Value of Vitamin D and Parathyroid Extract (Lantern Demonstration)

CHARLES F NELSON, Beverly Hills, Calif

Discussion to be opened by EDWARD L COMBER, Chicago and WALTER BAUER, Boston

Relation Between Birth Injuries and the Obstetric History (Lantern Demonstration)

STEFFLE F STEWART, Los Angeles

Discussion to be opened by OSCAR L MILLER, Charlotte N C and CHARLES E SPYFI, Denver

Chairman's Address Transcondylar Fractures of the Humerus in Childhood (Lantern Demonstration)

JOHN DE LOE, Pasadena, Calif

The Use of Absorbable Metal in Bone Surgery (Lantern Demonstration)

EARL D McPHERD, Oklahoma City

Discussion to be opened by CHARLES SCOTT, Ft. Worth, San Antonio, Texas, and ROGER A DELSO, Seattle

Dashboard Fractures of the Patella (Motion Picture Demonstration)  
C FRED FERCIOT, Lincoln Neb  
Discussion to be opened by W B CAPRELL, Dallas Texas,  
and LOUIE FELGER, Los Angeles

Friday, June 17—2 p m

#### Election of Officers

Common Sense in the Treatment of Acute Hematogenous Osteomyelitis (Lantern Demonstration)

J ALBERT KEY St Louis  
Discussion to be opened by W D GRIESEMER, Reading, Pa, and JESSE T NICHOLSON Philadelphia

A Method of Reduction of Fractured Neck of the Femur by Transtrochanteric Skeletal Traction to be Followed by Axial Fixation with Threaded Steel Pins, with a Report of Five Years Follow Up on Transcervical Fixation (Lantern Demonstration) DAVID R TELSON Brooklyn  
Discussion to be opened by ROLAND HAMMOND Providence R I and LEROY C ABBOTT, San Francisco

Time Element in Fractures (Lantern Demonstration)

BARNEY J HEIN Toledo Ohio  
Discussion to be opened by DONALD C DURMAN Saginaw Mich, E M PORTER Great Falls, Mont, and G MASSER TAYLOR Los Angeles

Estimation of Disability After Injury (Lantern Demonstration)

WALTER G STERN Cleveland  
Discussion to be opened by HARRY E MOCK Chicago  
EARL D MCBRIDE, Oklahoma City, and LIONEL D PRINCE and HOWARD W FLEMING San Francisco

The Operative Treatment of Pes Planus (Lantern Demonstration)

CHARLES S YOUNG, Los Angeles  
Discussion to be opened by REX L DINELEY Kansas City, Mo and HENRI W WILCOX, Denver

### SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

MEETS IN CITY HEALTH BUILDING, CIVIC CENTER

#### OFFICERS OF SECTION

Chairman—HENRY L BOCKUS Philadelphia  
Vice Chairman—DESCUM C MCKENNEY Buffalo  
Secretary—A H AARON, Buffalo  
Executive Committee—ERNEST H GAITHER Baltimore Louis  
A BLUE, Rochester, Minn, HENRY L BOCKUS Philadelphia  
The annual banquet of the section will be held on Wednesday, June 15, 7 p m at the Hotel St Francis

Wednesday, June 15—9 a m

Gastroenterology in the Practice of Cardiology (Lantern Demonstration)

LOUIS F BISHOP JR New York  
Discussion to be opened by JOHN R TWISS New York  
The Effect of Smoking on the Activities of the Alimentary Tract (Lantern Demonstration)

ANDREW C ILL Chicago  
Discussion to be opened by SIDNEY A PORTIS Chicago  
Gallbladder Infection, Its Experimental Production and Attempts at Specific Therapy

MARTIN E REHRSS and GUY M NELSON Philadelphia  
Discussion to be opened by GARRETT CHIENEY San Francisco

Operative Injury to the Anal Sphincter Mechanism (Lantern Demonstration)

PALL C BLAISDELL Pasadena Calif  
Discussion to be opened by MALCOLM R HILL Los Angeles

Proctologic Tumors Diagnostic Difficulties and Pathologic Changes (Lantern Demonstration)

CLAUDE C TUCKER and C ALEXANDER HELLWIG Wichita Kan

Discussion to be opened by CURTICE ROSSER Dallas Texas

Recording the Movements of the Gastrointestinal Tract by Roentgen Kymography (Motion Picture Demonstration)

WENDELL G SCOTT St Louis  
Discussion to be opened by CHARLES W DUDEN St Louis

Medical Aspect of Cancer of the Stomach (Lantern Demonstration)

SARA M JORDAN Boston  
Discussion to be opened by MANUEL FELIX CUNHA San Francisco

Gastrointestinal Symptoms in Disease of the Brain (Lantern Demonstration)

HARRY GAUSS Denver  
Discussion to be opened by EDWARD G BILLINGS Denver

Thursday, June 16—9 a m

Chairman's Address Training of the Gastroenterologic Internist

HENRY L BOCKUS Philadelphia

### SYMPOSIUM ON ULCERATIVE COLITIS

The Medical Management of Chronic Ulcerative Colitis (Lantern Demonstration) THOMAS T MACKIE, New York  
Functional or Sociologic Disorders of the Colon Medical and Surgical Considerations (Lantern Demonstration)  
ELNIFF G WAKEFIELD and CHARLES W MAYO Rochester, Minn

The Surgical Treatment of Ulcerative Colitis

THOMAS E JONES Cleveland  
Prognosis of Ulcerative Colitis (Lantern Demonstration)

JOHN H WILLARD Philadelphia, J F PESSLE, Trenton, N J and J WARREN HUNDLEY, Philadelphia

Discussion on papers of Dr MACKIE, Drs WAKEFIELD and MAYO, Dr JONES and Drs WILLARD, PESSLE and HUNDLEY to be opened by WILLIAM FITCH CHIENEY, San Francisco JOHN H FITZGIBBON, Portland, Ore, WILLIAM C BOECK, Los Angeles, and ARTHUR L BLOOMFIELD, San Francisco

Studies on Treatment in Intestinal Tuberculosis (Lantern Demonstration)

LEO L HARDT and JOHN S COLLIER Chicago  
Discussion to be opened by DESCUM C MCKENNEY, Buffalo

A Review of a Group of Proctologic Operations Using Spinoermin as an Anesthetic (Lantern Demonstration)

MARTIN S KLECKNER Allentown, Pa  
Discussion to be opened by DUDLEY A SMITH, San Francisco

Intravenous Alimentation with Special Reference to Protein (Amino Acid) Metabolism (Lantern Demonstration)

ROBERT ELMAN St Louis  
Discussion to be opened by ANDREW C ILL, Chicago

Friday, June 17—9 a m

#### Election of Officers

Clinical Observations on a Group of Ulcer Cases (Lantern Demonstration) J McDONALD MILLICAN, Elgin, Ill  
Discussion to be opened by GRANT H LANPHERE, Los Angeles, and FRED H KRUSE San Francisco

The Value of Roentgenologic Demonstration of the Crater in Duodenal Ulcer (Lantern Demonstration)

FREDERIC C TEMPLETON and A W MARCOWICH, Chicago  
Discussion to be opened by THEODORE L ALTHAUSAN, San Francisco

Sex Hormones in Peptic Ulcer (Lantern Demonstration)

DAVID I SANDWEISS Detroit  
Discussion to be opened by WARREN O NELSON, Detroit

Gastritis Correlation of Gastric Analysis and Clinical Observations with Gastroscopy

JOSEPH BANK Phoenix, Ariz, and ROBY JOHN F RENSCHAW Los Angeles

Discussion to be opened by FRANK D GORHAM, St Louis

Gastroscopy as Compared with Other Methods of Diagnosis in Gastric Lesions (Lantern Demonstration)

ELMER B FREEMAN, Baltimore  
Discussion to be opened by ROBY JOHN F RENSCHAW, Los Angeles

Some Forms of Hepatitis Not Commonly Recognized (Lantern Demonstration)

JAMES F WRIG Rochester Minn  
Discussion to be opened by DWIGHT L WILBUR, San Francisco

Strongyloidosis A Discussion of Strongyloid Infestation with Emphasis on Its Therapy

VIRGIL E SIMMONS Louisville, Ky  
Discussion to be opened by THOMAS T MACKIE, New York

Extrahepatic Metastatic Growths from Upper Abdominal Malignant Neoplasms Report of Twelve Cases (Lantern Demonstration)

HARRY E BACON Philadelphia  
Discussion to be opened by NEWTON D SMITH Rochester, Minn and W H DANFORTH Los Angeles

### SECTION ON RADIOLOGY

MEETS IN ROOM OF OLIVE HOUSE, CIVIC CENTER

#### OFFICERS OF SECTION

Chairman—B R KIRKLIN Rochester Minn  
Vice Chairman—R G TAYLOR Los Angeles  
Secretary—JOHN T MURPHY Toledo Ohio  
Executive Committee—THOMAS L JR Chicago  
ROSS GOLDEN New York B K KAPLAN Rochester, Minn

Wednesday, June 15—9 a m

The Thymus Studies of Some Changes in the Gonads and Pituitary Following Destruction of the Thymus by Roentgen Irradiation (Lantern Demonstration)  
JACOB GERSHON-COHEN, HARRY SHAY, S S FELS, DAVID R MERANZE and THEODORE MERANZE, Philadelphia  
Factors Influencing the Radiosensitivity of Malignant Neoplasms of the Uterine Cervix (Lantern Demonstration)  
H H BOWING and ROBERT E FRICKE Rochester Minn  
The Irradiation of Kidney Tumors in Children (Lantern Demonstration)  
H D KERR, Iowa City  
Apical Lung Tumors (Lantern Demonstration)

JUSTIN J STEIN, Hines Ill  
Supervoltage Roentgen Treatment of Carcinoma of the Bladder (Lantern Demonstration)

RICHARD DRESSER and ROGER C GRAVES, Boston  
The Roentgen Treatment of Acute Peritonitis and Other Infections with Mobile Apparatus (Lantern Demonstration)  
JAMES F KELLY and D ARNOLD DOWELL, Omaha

Thursday, June 16—9 a m

JOINT MEETING WITH SECTION ON PEDIATRICS IN AUDITORIUM OF OPERA HOUSE CIVIC CENTER

Sinus Disease in Children (Lantern Demonstration)

W WALTER WASSON, Denver  
Sinus Treatment in Children (Lantern Demonstration)

EDWARD C MITCHELL Memphis Tenn  
Ephedrine in a Physiologic Vehicle and Lateral Head Low Posture in Treatment of the Nose and Sinuses (Lantern and Motion Picture Demonstration)  
SIDNEY N PARKINSON, Oakland Calif

Discussion to be opened by JOHN J SHEA, Memphis, Tenn  
Diagnosis and Treatment of Thymus Disease with X-Rays (Lantern Demonstration)

CLAUDE K HASLBY, Detroit  
Experimental Phases of the Thymus Problem (Lantern and Motion Picture Demonstration)

L G ROWNTREE and N H EINHORN, Philadelphia  
Thymus Problem in Children (Lantern Demonstration)

A GRAHAM MITCHELL Cincinnati  
Discussion to be opened by EDITH BOYD Minneapolis

Friday, June 17—9 a m

Election of Officers

Chairman's Address Lipoid Pneumonitis (Lantern Demonstration)  
B R KIRKLY, Rochester Minn

Plamigraphy Its Application to Thoracic Diagnosis (Lantern Demonstration)  
WILLIAM E HOWES, Brooklyn

Body Section Radiography in Surgical Conditions (Lantern Demonstration)  
STERNWOOD MOORE, St Louis

Hydronephrosis Caused by Aberrant Renal Blood Vessels Demonstrated by Intravenous Urography (Lantern Demonstration)  
JACOB ABOWITZ, Los Angeles

Further Observations of the X-Ray Manifestations of Amebic Infections of the Large Bowel (Lantern Demonstration)  
J C BELL, Louisville Ky

Epiplisyitis of the Capitellum of the Humerus (Lantern Demonstration)  
JOSEPH F EDWARD, Washington, D C

Gastrocolic Fistulas (Lantern Demonstration)  
WILBUR P BAILEY, Los Angeles

## THE SCIENTIFIC EXHIBIT

### THE SCIENTIFIC EXHIBIT

The Scientific Exhibit is correlated with the Scientific Assembly as far as possible. Each section of the Scientific Assembly has appointed a section representative or a committee to the Scientific Exhibit. In addition to 155 exhibits, the Board of Trustees has provided for special exhibits on Anesthesia and on Fractures.

All exhibits are open to awards except the special exhibits and the organization exhibits of the American Medical Association headquarters group.

The Scientific Exhibit is located in the Civic Auditorium in Polk Hall and the adjoining corridors with entrances from the Technical Exhibit. Admission to the Scientific Exhibit is limited to Fellows and guests of the Association who have registered for the session and who are wearing badges or holding guest cards. The Scientific Exhibit is not open to the public.

### SPECIAL EXHIBIT ON ANESTHESIA

The special exhibit on anesthesia is presented for the second year under the auspices of an exhibit committee appointed by the Committee on Scientific Exhibit of the Board of Trustees as follows: P J Hanzlik, San Francisco, Chauncey D Leake, San Francisco, Philip D Woodbridge, Boston, Ralph M Waters, chairman, Madison, Wis.

The 1938 exhibit will deal with the following subjects:

Premedication agents

Local anesthesia

General anesthesia

A pamphlet has been prepared for distribution at the exhibit. Demonstrations will be given continuously throughout the week by a competent corps of anesthetists.

### SPECIAL EXHIBIT ON FRACTURES

The exhibit on fractures is continued again this year along somewhat the same lines as last year. The special exhibit committee appointed by the Committee on Scientific Exhibit of the Board of Trustees is composed of the following: Frank D Dickson, Kansas City, Mo., Walter Estell Lee, Philadelphia, Kellogg Speed, chairman, Chicago.

The following subjects will be considered:

- 1 Plaster of Paris—Making and Storing
- 2 Application of Plaster of Paris
- 3 Fracture of the Lower End of the Radius
- 4 Fracture of the Spine—Compression

5 Fracture of the Ankle

6 First Aid Treatment of Fractures of the Lower Extremities

Demonstrations will be given continuously throughout the week. A special folder has been prepared for distribution in connection with the exhibit.

The following physicians will take part in the demonstration:

Otis F Akim, Portland, Ore.  
Harold D Barnard, Los Angeles, Calif.

Leonard Barnard, Oakland, Calif.  
Walter Birnbaum, San Francisco, Calif.

Joseph H Boyes, San Francisco, Calif.  
L S Cherney, San Francisco, Calif.

Albert G Clark, San Francisco, Calif.  
Dwight F Clark, Evanston, Ill.

E W Cleary, San Francisco, Calif.  
John W Cline, San Francisco, Calif.

F E Clough, San Bernardino, Calif.  
Wilbur J Cox, San Francisco, Calif.

Martin W Debenham, San Francisco, Calif.  
R L Dresel, San Jose, Calif.

Charles A Dukes, Oakland, Calif.  
Donald C Durnan, Saginaw, Mich.

C Fred Feresot, Lincoln, Neb.  
Charles B Fowler, Oakland, Calif.

Alfred E Gallant, Los Angeles, Calif.  
W W Greene, San Francisco, Calif.

I M Greer, Phoenix, Ariz.  
Delbert Hand, San Francisco, Calif.

Nelson J Howard, San Francisco, Calif.  
Rusell F Jacile, San Francisco, Calif.

Joseph Jephson, San Jose, Calif.  
J Joutzenheier, San Francisco, Calif.

G J McChesney, San Francisco, Calif.  
H H Marble, San Francisco, Calif.

Carleton Mathewson Jr., San Francisco, Calif.

J Minton Meherin, San Francisco, Calif.

Merrill Mensor, San Francisco, Calif.

Arthur R Metz, Chicago, Ill.

Jesse Nicholson, Philadelphia, Pa.

Norman C Paine, Wendle, Calif.

E Payne Palmer, Phoenix, Ariz.

R S Palmer, Pomona, Calif.

Leon O Parker, San Francisco, Calif.

Edward K Irigge, Los Angeles, Calif.

Lionel D Prince, San Francisco, Calif.

Paul A Quaintance, Los Angeles, Calif.

S B Richard, San Bernardino, Calif.

Edward S Ruth, Los Angeles, Calif.

George Sanderson, Stockton, Calif.

H I Schott, Los Angeles, Calif.

A B Sirbu, San Francisco, Calif.

Emuel D Smith, Milwaukee, Wis.

H W Spiers, Los Angeles, Calif.

P P Stephen, Oakland, Calif.

Philip Stephens, Los Angeles, Calif.

Steele Stewart, Los Angeles, Calif.

Walter Stuel, San Antonio, Texas.

C S Venable, San Antonio, Texas.

I M Walker, Laredo, Calif.

Jame P Warren, San Francisco, Calif.

George Waters, San Francisco, Calif.

H W Wile, Denver, Colo.

Charles S Young, Los Angeles, Calif.

C L Young, Los Angeles, Calif.

### Section on Practice of Medicine

The representative to the Scientific Exhibit from the Section on Practice of Medicine is Fred M Smith, Los Angeles.

ELLIOTT P JOSE, LOUIS I DUBIN, HOWARD I ROSE and HEIDBERT H MARKS, Boston and New York.

Addresses in the Treatment of Diabetic Mellitus: Exhibit showing recent trends in the incidence of diabetes in various

population groups the changing incidence of complications of the disease, resulting from the increasing duration of life of diabetic patients, and the problems of treatment presented, new data on the diagnosis, etiology and pathology of the disease and on the results of treatment with protamine insulin, relation of the anterior pituitary and diabetes as demonstrated experimentally and by a comparison of acromegaly and diabetes advances in the treatment of diabetes and the further progress that can be achieved by intensive application of information of the disease and of up-to-date therapeutic methods

STACY R. METTIER and CHARLES L. COYDOR, University of California Hospital, Medical Center San Francisco

*Structural Changes of the Bone Marrow in Various Hematologic States* Exhibit consisting of microscopic specimens of fixed tissue and of coverslip smears abstract of case histories and important laboratory observations, water color paintings of bone marrow smears, diagrams of aleukemic leukemia, specimens of multiple myeloma, plasmacytoma, purpura haemorrhagica pernicious anemia aplastic anemia and the bone marrow during the course of infections and other conditions

WILLARD O. THOMPSON and NORRIS J. HECKEL, Chicago

*The Production of Genital Growth in the Male* Exhibit demonstrating that the anterior pituitary-like principle from the urine of pregnant women exerts a powerful stimulus to the growth of the genitalia of the human male, series of photographs showing marked genital growth from its use before and after the age of puberty, notably in patients with hypogonadism and undescended testes, stages in the production of premature puberty following its administration, treatment of hypogonadism and undescended testes, importance of avoiding marked genital growth in young boys

R. J. REITZEL, S. P. LUCIA, Department of Medicine and KARL F. MEYER Hooper Foundation for Medical Research, University of California Medical School San Francisco

*Clinical and Epidemiologic Demonstration of Various Infectious Diseases* Exhibit of clinical data characteristic temperature charts, case summaries, laboratory diagnostic methods of pneumonia, gonococcal infections meningitis brucellosis tularemia, plague, Weil's disease, rat-bite fever relapsing fever, psittacosis venereal lymphogranuloma trichinosis and other infectious diseases, presentation with charts and models showing heterogeneous infection chains of such diseases as tularemia brucellosis, relapsing fever, trichinosis sylvatic plague and psittacosis Exhibit includes a model typing station for pneumonia

EDWARD F. HARTUNG, JOHN D. CURRENCE and MARGARET STRAUB NEIL, New York Post-Graduate Medical School and Hospital, New York

*Social Aspects of Chronic Rheumatism* Exhibit showing the extent of the morbidity of rheumatic diseases in the United States, the long duration of disability, and the economic and industrial loss, the almost total lack of hospital facilities to combat this problem, and a plan of hospitalization which will definitely cut down the incidence of chronic disability due to rheumatism

RUSSELL L. CECIL, New York New York State Department of Health, and Metropolitan Life Insurance Company

*New Methods for Pneumonia Control* Exhibit of charts, maps and specimens covering (a) modern methods for pneumococcus pneumonia diagnosis treatment and recent experience with serum treatment (b) survey of pneumonia incidence in United States and Canada, (c) outline of the New York State Department of Health program for pneumonia control

W. A. SODEMAY and G. E. BURCH, Tulane University School of Medicine New Orleans

*Tissue Pressure and Skin Distensibility, Objective Measurements in Vascular States* Exhibit showing apparatus and methods for the determination of tissue pressure and skin distensibility with the accumulated data, charts exhibiting the application of these data to the interpretation of the normal and abnormal physiology of interchange of fluid between blood vessels and tissue spaces, relationship of the factors to an

understanding of the limitation of the degree of cardiac and other types of edema, demonstration of the use of these methods in the diagnosis, prognosis and evaluation of therapy in scleroderma

AUGUST A. WERNER, St. Louis University Medical School, St. Louis

*Theilm Clinical Studies* Exhibit showing the results of clinical research with castrate women and the effects on the endometrium and vaginal tissue, presentation of the syndrome accompanying castration, ovarian hypofunction menopause and involutional melancholia with treatment

MERRITT B. WHITTEN, Dallas

*Electrocardiogram with Midaxillary Leads* Exhibit illustrating the manner of application of the electrodes in taking midaxillary leads, enlarged reproductions from actual electrocardiograms comparing the midaxillary leads with the conventional limb leads in various cardiac disorders and demonstrating certain advantages of the former leads over the latter, observations demonstrating that in anteriorly located myocardial infarction and in predominant left ventricular strain (as in hypertension and other conditions) the midaxillary leads often show the characteristic electrocardiographic changes of these lesions earlier and to a more marked degree and these changes often persist longer than similar changes seen in the conventional limb leads of the electrocardiogram, apparent advantages of the midaxillary leads in multiple infarctions, interventricular conduction disturbances, pericarditis, and so on, as well as the characteristic changes from digitalis

BAYARD T. HORTON, CHARLES SHEARD and MARVIN M. D. WILLIAMS, Mayo Clinic, Rochester, Minn.

*Isotonic Regulation of the Temperatures of the Extremities in Health and Disease* Exhibit of charts and diagrams showing the results of physiologic and clinical investigations concerning (1) surveys of skin temperatures of various portions of the body, (2) degree of vasoconstriction as evidenced in the effects produced on skin temperatures by changes of environmental conditions, (3) effects of ingestion of food on the temperatures of the extremities, (4) relative roles of upper and lower extremities in the regulation of loss of heat from the body in environments ranging from 60 to 95 F., (5) comparison of results obtained on normal individuals with observations on subjects with peripheral vascular diseases

E. KOST SHELTON, BENJAMIN A. TAGER and SHELDON A. PAVINE, Los Angeles

*Endocrine Factors in Growth and Development* Exhibit of special photographs of children with endocrine disturbances taken in the nude against a black background marked off in six inch squares, allowing accurate comparison of changes taking place during period of treatment

#### Section on Surgery, General and Abdominal

The representative to the Scientific Exhibit from the Section on Surgery General and Abdominal, is Grover C. Penberthy, Detroit. In addition to the several exhibits there will be a continuous motion picture program in an adjoining area

CONRAD R. LAM, Henry Ford Hospital, Detroit

*Experiments on Intra-Abdominal Pressure* Role of distention in atelectasis and postoperative pneumonia Exhibit of diagrams of apparatus, enlarged reproductions of kymograph records photographs of pathologic specimens, photomicrographs tables and transparencies showing the effect of variations in abdominal pressure on respiration and blood pressure and the influence of increased abdominal tension on the development of postoperative pulmonary complications

SHERWOOD MOORE, St. Louis

*Body Section Radiograph* Exhibit of collection of roentgenograms of conventional type compared with body section roentgenograms or laminagrams of the same subject illustrating the advantages of the latter in certain pathologic conditions certain clinical facts, and, where possible photographic reproductions of pathologic specimens in pulmonary disease and tuberculosis of bone illustrating the practical utility of body section radiography in surgical lesions



A C SCOTT Scott and White Hospital, Temple Texas

*Mammary Tumors Diagnosis and Treatment* Exhibit of moulages charts and other data dealing with technic for diagnosis of breast tumors demonstrated by series of moulaged breasts and sagittal breast sections showing early dimpling on the skin surface by shadow test, the radical excision of breast tumors shown in each succeeding step by a series of moulages motion pictures in color demonstrating the shadow test and the radical excision as done with the loop-cautery knife

WILLIAM OSLER ABBOTT, University of Pennsylvania, Philadelphia and CHARLES G JOHNSTON, R J NOER GROVER C PENBERTH, J C KEATING and J E LOFSTROM, Wayne University College of Medicine Detroit

*Acute Intestinal Obstruction—Treatment by Small Intestinal Intubation* Exhibit of charts showing clinical histories of patients with intestinal obstruction, photographs of roentgenograms before and after treatment and of roentgenograms indicating the nature and location of the lesions, kymographic tracings of the activity of obstructed intestine and drawings of diseased intestine Moving picture film depicting technic of treatment

HAROLD BRUNN and Associates, The Thoracic Clinic, University of California Hospital, San Francisco

*Surgical Conditions of the Thorax* Exhibit of roentgenograms, charts and models of various surgical conditions of the chest including bronchiectasis, tumors hydatid cysts and others and operation on the heart, and motion pictures

HARRY C SALTZSTEIN EDWARD H LALPPE and M Z FELDSTEIN, Detroit

*The Care of Advanced Cancer* Exhibit dealing with the clinical course of terminal cancer with analysis of the terminal symptoms of patients who died of cancer differences in terminal manifestations and clinical mode of exitus of cancer in different regions of the body, average length of terminal care necessary compared to incidence of these cases in general hospitals and United States mortality figures the treatment of far advanced cancer, with a discussion of palliative operations palliative roentgen treatment general measures and nursing care for advanced cases, and pain relief, showing drugs with comparison of different narcotics and measures to combat morphine addiction, nerve injections, subarachnoid alcohol injections with review of literature technic (illustrated with diagrams), indications complications and results

MANUEL GRODINSKY and EDWARD HOLYOKE Department of Anatomy and Surgery, University of Nebraska College of Medicine Omaha

*Fasciae and Fascial Spaces of the Head, Neck and Adjacent Regions and Their Relation to Infections* Exhibit consists of (1) transparencies, four of which are made from diagrammatic drawings derived from dissections injections, and sections of human material, and the remainder made from tracings on bleached photographs of sections of adult and fetal material (2) moulages made from transverse sections of adult material

GORDON B NEW F A FIGL, F Z HAVENS and J B ERICH, Mayo Clinic, Rochester Minn

*Deformities of the Face, Correction by Plastic Surgery* Exhibit of models photographs and motion pictures showing the technic of various types of operations for correcting acquired and congenital deformities of the face, the appearance of the patient before and after operation by means of numerous casts and photographs Subjects treated include (1) harelip (2) rhinoplasty (3) deformities resulting from automobile injuries, (4) various types of deformities of the nose mandible and ear (5) use of tubed flap for closing perforations of the cheek resulting from cancer, (6) angiomas and scarring due to burns

GEORGE W SWIFT and S N BERENS Seattle

*Cerebrocranial Injuries* Exhibit of specimens mounted in glass showing the different types of injuries to the brain cortex, brain stem and ventricles post-traumatic atrophies charts showing the different types of injuries with mortality statistics, charts showing actual brain injuries with photographs, charts showing microscopic sections of concussions

of the brain, charts showing post traumatic sequelae with encephalograms, charts outlining treatment for the three stages (a) shock, (b) brain injuries, (c) sequelae, statistical charts showing a series of head injuries

EUGENE B POTTER and P A ROHFER, The Mason Clinic, Seattle

*Pararenal Tumors* Exhibit showing case reports of large pararenal tumors, with roentgenograms, gross mounted specimens and microscopic pathologic study, charts with classification of pararenal tumors charts referable to surgical technic

R RUSSELL BEST and N FREDERICK HICKEN, Omaha

*A Nonoperative Method for Removal of Residual Biliary or Common Duct Stones* Exhibit showing that stones mucous plugs, blood clots or clumps of inspissated bile are not infrequently present in the common duct following operations on the biliary tract and that their presence may be suggested by some sign or symptom or may be proved by cholangiography if a T-tube or catheter is present or a biliary fistula exist presentation of a method of forcing out the smaller foreign bodies by simultaneously increasing the pressure behind them and completely relaxing the sphincter of Oddi by various means the increased intraductal pressure and flushing out effect is obtained by administering dehydrocholic acid, if a tube or fistula is present, direct irrigation with warm physiologic solution of sodium chloride olive oil or iodized oil in addition to the dehydrocholic acid enables one to increase the intraductal pressure, charts reveal the increase of intraductal pressure by the administration of dehydrocholic acid Roentgenograms show that foreign bodies in the common duct can be dislodged by the method described indications and contraindications are presented the operative removal of common duct stones is illustrated

JOHN O BOWER JOHN C BURKS and H A K MARGIE Philadelphia

*Comparative Study of the Reparative Processes in the Gastrointestinal Mucosae Following Division and Suture with Special Reference to Very Fine Calypt Sutures* Exhibit of transparencies showing the results of suture of the divided mucous membrane of the dogs stomach and intestine photographs showing tissue reaction and comparative rate of absorption of coarse and fine catgut at twenty four hour intervals after operation, gross and transparent specimens showing arterial supply of the stomach of man and dog motion pictures in color showing the technic of various types of gastric resection with special reference to the use of 50 chromic catgut

HAROLD LINCOLN THOMPSON, Los Angeles

*Acute Perforation of Peptic Ulcer* Exhibit of charts, diagrams drawings, photographs surgical and pathologic specimens and roentgenograms illustrating the etiology symptom diagnosis pathology treatment and results of treatment of acute perforation of gastric, duodenal and gastroyejunal ulcers

JOEL W BAKER and MAURICE F DWYER, The Mason Clinic Seattle

*Results in the Surgical Treatment of Duodenal Ulcer* Exhibit of photographs of correlated preoperative and post operative roentgenograms and resected specimens roentgenologic function and apparent (false) dysfunction from one to two weeks after operation indications for surgery in duodenal ulcer individual indications for the various surgical procedures used in duodenal ulcers mounted specimens, illustrating hemorrhagic and perforating ulcers

BERNHARD STEINBERG Toledo Hospital Toledo Ohio

*Protection Against Peritonitis* Exhibit demonstrating tissue reaction together with the changing picture of the peritoneal exudate throughout the course of diffuse experimental peritonitis peritoneal exudate correlated with the peripheral blood and the general condition of the cardiovascular system exemplified by electrocardiographic tracings and continuous blood pressure throughout the entire course of peritonitis pictures of preventive and curative treatment drawn from the material and abnormal physiologic changes observed during the course

ments suggestive therapeutic measures, both preventive and curative

ALBERT D DAVIS, San Francisco

*Plastic Surgery* Exhibit of photographs showing patients prior to operation, operative steps, appearance during reconstructive surgery, and postoperative results

ELIN L PEARL, San Francisco

*Muscle Splitting Extraperitoneal Lumbar Ganglionectomy, A Satisfactory Approach to the Retroperitoneal Space* Motion picture demonstration in color of the operation of lumbar ganglionectomy, performed by a completely muscle-splitting extraperitoneal approach, interesting anatomic landmarks, indicating the use of the same approach for extraperitoneal exposure of the great abdominal vessels, ureter, psoas muscle and vertebrae

DUDLEY SMITH, San Francisco

*Management of Colostomy* Motion picture demonstration in color showing the details of colostomy care and the technique used to insure comfort, cleanliness and freedom from odor patients engaged in various professional, business and industrial occupations and others enjoying the usual social diversions and sports, "social isolation" of colostomy patients shown to be due to ignorance of the details of proper care

### Section on Obstetrics and Gynecology

The representative to the Scientific Exhibit from the Section on Obstetrics and Gynecology is H Close Hesselstine, Chicago. Motion pictures will be shown under the auspices of the section in an area adjoining the exhibit

JOHN C RUDDOCK and ROBERT B HOPE, University of Southern California, Los Angeles

*Peritoneoscopy* Exhibit of diagrams, pictures, tables, charts and posters describing technique for visualization of abdominal cavity, hazards of the procedure and how avoided, method of obtaining biopsies, special techniques for stomach examination, division of adhesions, analysis of cases showing pathologic conditions encountered and evaluation of the procedure

L H GARLAND and A V PETTIT, San Francisco

*Prediction of Certain Types of Difficult Labor by Pelvicography* An Obstetric and Radiologic Investigation Exhibit of a series of transparencies illustrating the basic principles of the roentgen diagnosis of the various morphologic types of female pelvis together with adequate text and tabular information, the four main types of female pelvis are illustrated and the exact clinical significance of these various types in a series of 300 carefully studied cases is outlined

RICHARD TORPIN, University of Georgia School of Medicine Augusta

*Placental Site Studies Using an Original Method of Amniotic Sac Distention* Exhibit of (1) paraphernalia used (2) fresh placental sac distended in a tank of fluid showing the cervical opening and two opposite bulges located at the site of the uterine horns (3) clay models of distended sacs showing location outline and approximate size of the placenta and the character of the placental margin whether normal, marginal or circumvallate

CHARLES EDWIN GALLOWAY and TOM D PAUL, Evanston Ill

*The Cervix and Colored Microphotography* Exhibit demonstrating the use of colored photographs for teaching purposes as well as for records, the camera a model of the female pelvis and black speculum in place shadow boxes with colored slides projector with a small screen

JULIAN M BRUNER, Des Moines and L F ROSEBROOK, Ames Iowa

*Photographic Records of the Cervix Uteri* Exhibit demonstrating a method of making photographic records of the cervix uteri. Photographs illustrating lesions of the cervix special speculum required for this work illustrated by drawings method described in detail whereby the gynecologist can make photographic records of the cervix in the office

FRED L ADAIR and EDITH J POTTER, Chicago

*Causes of Death in the Fetus and Neonatal Period* Exhibit of photographs drawings, roentgenograms and diagrams showing causes of death divided into six groups—anaemia, trauma, infections malformations, idiopathic diseases, prematurity, each of which is subdivided into principal maternal conditions causing or associated with each group, and the pathologic conditions produced in the fetus or infant as anaemia—placenta praevia, abruptio placentae and cord abnormalities, producing petechial hemorrhages, aspiration of amniotic fluid depression of respiratory center and so on in the fetus and infant

In an area adjoining the exhibit of the section, motion pictures on obstetrics and gynecology will be shown on a definite schedule throughout the week

E D PLASS, Iowa City, Delivery

J B DE LEE, Chicago, Treatment of Asphyxia Neonatorum

H O JONES, Chicago, Subtotal Abdominal Hysterectomy

F L ADAIR, Chicago, Colpocystitis

### Section on Ophthalmology

The section exhibit committee of the Section on Ophthalmology consists of Georgiana Dvorak-Theobald Oak Park, Ill, chairman, Dohrmann K Pischel, San Francisco, and Derrick T Vail Jr, Cincinnati. A motion picture program will be conducted continuously throughout the week in an area adjoining the exhibits

JOHN E L KEYES and HARRY GOLDBLATT, Institute of Pathology, Western Reserve University, Cleveland

*Vascular Changes in the Eyes in Experimental Hypertension* Exhibit of colored drawings of the fundus oculi in experimental hypertension and human hypertension, photomicrographs illustrating changes found in the ocular vascular system in experimental hypertension and human hypertension

DOHRMANN K PISCHEL, San Francisco

*Statistics on Retinal Detachment Operations* Exhibit showing statistical data in all cases of retinal detachments in which operation was performed at Stanford Hospital for past four years, results type of detachment, presence of holes and other facts

PHILLIPS THAGELSON, New York and POIRIE RICHARDS, United States Indian Service, Albuquerque, N M

*Nature of the Filtrable Agent of Trachoma* Exhibit presenting a summary of a series of experimental studies of trachoma which lead to the conclusion that trachoma is a virus disease

HERMANN M BURIAN, The Dartmouth Eye Institute, Dartmouth Medical School, Hanover, N H

*Peripheral Fusion and Eye Movements* Exhibit showing that instrumentation in which projection lanterns and polarizing material differentiate the images formed in the two eyes is used to demonstrate that changes in the relative direction of the visual axes of the eyes can be produced by purely peripheral visual stimuli and that the fusional innervations resulting from peripheral stimuli can dominate foveal fusion

FREDERICK C CORDES, San Francisco

*Collection of Old Ophthalmoscopes* Exhibit of a collection of ophthalmoscopes including a replica of Helmholtz's ophthalmoscope together with old models dating from Jaeger down through the early electrical instruments instruments used by Fuchs Jackson Thornton de Schweinitz and others interesting and odd instruments, including a binocular reflecting ophthalmoscope

CARL I RICE, United States Public Health Service, Washington D C and CONRAD PERLIN, New York

*Medical Aspects of Aid for the Needy Blind* Exhibit showing that forty states and territories are now cooperating with the Social Security Board in giving financial aid to the needy blind efforts made to build up high medical standards in the state programs having to do with this matter increasing interest shown in the various states in organized prevention of blindness and restoration of vision in needy persons in connection with aid to the blind state laws and state practice in the matters in varied and interesting avenues during the past two years

OTTO BARKAN, San Francisco

*Glaucoma Investigations, Anatomic Classification and Recently Developed Surgical Procedures* Exhibit of a series of plaster casts, drawings and photographs demonstrating the division of primary glaucoma into two main anatomic types according to the different mechanical causation of the increased intra-ocular pressure in each, critical survey of mode of action and sequelae of present day operations on the basis of this classification, effect of injection of physiologic solution of sodium chloride into the anterior chamber on the configuration of the iridic angle, demonstration of two surgical procedures devised to relieve the mechanical cause of two respective types of glaucoma photographs and case histories of goniotomy operation for deep chamber type of glaucoma and a recently devised surgical procedure for shallow chamber type of glaucoma

WALTER FINA, Minneapolis

*Ocular Dynamics* Exhibit demonstrating the various methods employed in studying ocular duction power, tabulated results of a series of cases in which these various methods have been employed, conclusions suggesting the comparative value of these methods

DANIEL B. KIRBY, New York

*Cataract Extraction* Motion picture demonstration in color showing preliminary iridectomy, capsulotomy extraction, discussion of after cataract and intracapsular extraction with peripheral iridotomy

LOUIS LEHPFELD, Philadelphia

*Vernal Conjunctivitis* Motion picture demonstration in color describing the types of vernal conjunctivitis and offering clinical evidence of reproduction of clinical symptoms out of season by instillation of causative allergens in conjunctiva culdesac and showing that vernal conjunctivitis is an ocular manifestation of an allergy

WATSON GAILEY, Bloomington, Ill

*Intracapsular Extraction of Senile Cataract* Motion picture depicting the complete routine of cataract extraction, starting with the setup in surgery, method of draping the patient, close-up of the instrument table, operating table, lighting equipment, and so on, and method of lifting the patient from the operating table to the cart

CLIFFORD WALKER, Los Angeles

*The Performance and Characteristics of Ocular Muscles with Respect to Separated Retina and Some Other Operations and Conditions* Motion picture demonstration in color

#### Section on Laryngology, Otology and Rhinology

The representative to the Scientific Exhibit from the Section on Laryngology, Otology and Rhinology is Robert C. Martin, San Francisco

JOHN A. MARSHALL, University of California Medical Center, San Francisco

*Clinical Dental Pathology* Exhibit of photographs, photomicrographs, reproductions from roentgenograms and clinical specimens of extracted teeth showing the various lesions of the hard tissues in the initial, intermediate and terminal stages

WILLIAM J. MELLINGER, Santa Barbara

*Petrous Apex of the Temporal Bone and Its Relations* Exhibit consisting of dissected specimens of the petrous apex, sections of temporal bone in different planes, Dorello's canal dissected, skull specimens showing different types of the apex, and roentgenograms of petrous bone

WALTER P. COVELL, Hooper Foundation, San Francisco  
L. J. BLACK, University of California, San Francisco, and  
N. A. WATSON, University of California, Los Angeles

*Recent Advances in Otologic Research* Exhibit of charts and experimental portable hearing aid dealing with A (1) application of the selective amplification principle to hearing aids, (2) charts comparing bone conduction with air conduction for hearing of pure tones and speech sounds, B (1) charts and photomicrographs dealing with histopathologic changes in

the peripheral auditory mechanism for drug-injected animals and certain vitamin deficient animals, diagrams of equipment used for electrical hearing tests for eliciting responses charts illustrating results obtained, photograph records demonstrating differences between cochlear response and auditory nerve action potentials

A. C. FURSTENBERG, MAX M. PEET and I. JEROME HAUSER  
University of Michigan Medical School, Ann Arbor, Mich

*Present Status of Zinc Sulfate as a Possible Prophylactic of Polymyositis* Exhibit of charts summarizing original work on laboratory animals which led to the belief that zinc sulfate may possibly prevent polymyositis in human beings, description of difficulties encountered and inadequacies of originally described method of application of zinc sulfate, demonstration of a simplified technique for administration of zinc sulfate, slides and charts showing the present status of work, summary of questions to be answered and problems to be solved

SIMON L. RUSKIN, New York

*Venous and Arterial Circulation of the Nose and Accessory Sinuses and Its Surgical Significance* Exhibit of dissections and charts describing the circulatory mechanism, color photographs of the vessels as they are seen in the various surgical procedures, course of the blood supply from the carotids to the final distribution and the points for ligation and optimum lines for incision, photomicrographs of the vascular mechanism in the mucosa

#### Section on Pediatrics

The representative to the Scientific Exhibit from the Section on Pediatrics is F. Thomas Mitchell, Memphis, Tenn

ATHA THOMAS, T. L. HOWARD, WILLIAM F. STANER, F. I. DOBAS and ROY FORBES, Children's Hospital, Denver

*Abnormal Calcification in Children* Exhibit of roentgenograms and transparent photographs of postmortem specimens, illustrating abnormal calcium deposits in children, including faulty elimination, renal rickets, faulty nutrition, sepsis and rickets, glandular dysfunction, hyperparathyroid disease, inflammatory conditions, dermatomyositis and tuberculosis, traumatic conditions, myositis ossificans

KATSUJI KATO, Chicago

*Blood Picture in Health and Disease* Exhibit of drawings in natural colors of blood and bone marrow smears in various diseases, pictures of normal conditions at various age levels included for comparison

F. M. POTTINGER JR., Pottenger Sanatorium and Clinic, Monrovia, Calif

*Study of Childhood Asthma as a Developmental Disease* Exhibit of (1) photographs of asthmatic children showing deviations from the normal, (2) graphs showing some of the anthropometric measurements of asthmatic patients as compared with the standard tables, (3) photographs and charts of experimental animals which show symptoms like those found in allergic children and their deviation from the normal, (4) charts showing the importance of certain factors in the development of the disease

ERNST WOLFF, NORMAN EPSTEIN and T. HENSHAW KILL, Mount Zion Hospital, San Francisco

*Prevention and Control of Impetigo of the Newborn* Exhibit consisting of a pictorial demonstration of seven years' experience in the epidemiologic control of impetigo of the newborn charts depicting (1) the clinical picture, (2) bacteriologic observation, (3) mode of infection, with such human sources as the mother, nurse attending physicians, maids and porters, laundry workers, visitors and fellow nursing, together with other factors as delivery room technique, nursery technique, physical setup of nursery nursing organization and methods of medical examination, (4) organization for prevention and epidemiologic control, dealing with constant supervision of human and material sources of infection, nursery setup with photographs of floor plan of specially constructed equipment nursery routine and care and treatment of infected babies, (5) statistical review of clinical results over period of seven years

JOSEPH A JOHNSTON, P J HOWARD, Henry Ford Hospital, and BRUCE DOUGLAS, Herman Kiefer Hospital, Detroit

*Endogenous Tuberculous Reinfection, Adult-Type Lesions Appearing in Children After Their Removal from Contact* Exhibit of x-ray films of children who showed on first examination either negative films or first infection types of disease but whose subsequent plates showed the development of the adult type

DAVID J COHN, Michael Reese Hospital, Chicago

*Oxygen Tent of New Design* Exhibit of a comfortable and easily portable oxygen tent, using a small, simply constructed and efficient cooling unit, details of construction shown and operation demonstrated

#### Section on Pharmacology and Therapeutics

The representative to the Scientific Exhibit from the Section on Pharmacology and Therapeutics is Wallace M Yater, Washington, D C

W P MURPHY, RAYMOND DILLON and ISABEL HOWARD, Boston

*Blood Dyscrasias Diagnosis and Effective Treatment* Exhibit of charts stressing the importance of adequate, controlled treatment of some of the more important blood dyscrasias and depicting the several advantages of the maintenance treatment of the patient with pernicious anemia with highly concentrated solution of liver extract by intramuscular injection, motion picture in color showing important features of the clinical picture and of the blood in several diseases of the blood

A C ILL, R R GREENE and M W BURRILL, Chicago

*Experimentally Produced Intersexuality in the Rat* Exhibit of charts, photographs, whole mounts and wax plate models of intersexed rats, normal female and normal male rats, the intersexed rats are genetically female and have been masculinized by antenatal administration of male sex hormone

WALTMAN WALTERS, E J KEPLER and R M WILDER Mayo Clinic, Rochester, Minn

*Adrenal Cortical Syndrome and Allied Disorders* Exhibit dealing with studies in adrenal cortical tumors and allied disorders carried on over a period of years on patients who presented symptoms suggesting the adrenal cortical syndrome, differentiation of adrenal cortical tumors, pituitary basophilism, and so on, transparencies illustrating the appearance of patients prior to and subsequent to the removal of adrenal cortical tumors, motion picture describing the anatomy of the adrenal gland, its surgical lesions, results of operation and the surgical approach to the gland through a posterolumbar, retroperitoneal incision

JOSEPH G HAMILTON, University of California Hospital, San Francisco

*The Demonstration of the Measurement of the Rate of Absorption and Excretion of Certain of the Artificially Radioactive Elements Such as Sodium, Potassium and Chlorine* Exhibit of charts, diagrams, Geiger counter and necessary accessories, experimental procedure permitting the observation by visitors of the method used, demonstration of the rate of excretion in the urine of these radioactive substances

R N HARGER, Indiana University School of Medicine, Indianapolis

*Rapid Methods for the Detection of Poisons for Use in Emergency Cases* Exhibit of reagents, apparatus and procedures used in the identification of certain common poisons in stomach contents, urine and blood, and the detection of a few volatile poisons in breath, description of original investigations in developing new procedures or simplifying older methods

ALFRED E KOCHLER, Santa Barbara, Calif

*Comparison of the Intravenous Dextrose Tolerance with the Apparent Oral Tolerance* Exhibit of apparatus for the intravenous injection of dextrose at a continuous constant rate over a period of two hours, blood sugar tolerance curves are shown and a comparison made with similar curves after the oral administration of dextrose demonstrating that the intravenous curve probably gives a better picture of the true tolerance,

as the oral curves may be markedly variable, owing apparently to variation in absorption

SAMUEL S ALTSHULER, Detroit, and RUDOLPH LEISER, Eloise Hospital, Eloise, Mich

*Crystalline Insulin* Exhibit dealing with (1) chemical properties, showing description of the crystals, preparation of crystalline insulin, analysis of the insulin, solubility and stability, (2) pharmacologic properties, showing effect on the blood sugar level as compared with unmodified insulin, role of zinc content and the effect of intravenous administration of crystalline insulin, (3) clinical use, showing results of the use of crystalline insulin in 150 diabetic patients over a period of two years and the method of administration

EDWIN E OSGOOD, University of Oregon, Portland

*Culture of Human Marrow as an Aid in the Evaluation of Therapeutic Agents* Exhibit demonstrating a simple method of growing human bone marrow, permitting quantitative studies of the interaction of living human cells, noxious agents and therapeutic agents under accurately controlled conditions, results of studies of the toxicity of sulfanilamide, its action on infections with known numbers of various micro organisms with or without the presence of human cells or serum, illustrated under the microscope, with photomicrographs and wall charts, applicability of the method to studies of other agents

#### Section on Pathology and Physiology

The representative to the Scientific Exhibit from the Section on Pathology and Physiology is F W Konzelmann, Philadelphia

FRANK W KONZELMANN, EDWARD WEISS, LAWRENCE W SMITH, WALTER I LILLIE and EDWIN S GAULT, Philadelphia

*Cardiovascular-Renal Disease, Clinical and Pathologic Correlation* Exhibit of charts illustrating statistical data, classification of various types of cardiovascular-renal disease with the important points of diagnostic value presented in diagram form, changes in eyegrounds and gross and microscopic pathology of heart vessels and kidney illustrated by photographs and wax reproductions, wax reproductions of eyegrounds mounted in representative death masks illustrating in a practical way the picture seen through the ophthalmoscope

J M HILL, Department of Pathology, and LEWIS WATERS, Department of Medical Art, Baylor University College of Medicine, Dallas, Texas

*Hemopoiesis* Exhibit of transilluminated color photomicrographs demonstrating (1) the formation of red cells (erythropoiesis) giving phases of maturation, with classification of anemias due to decreased red cell production, (2) the white blood cells (Schilling differential), showing a graphic representation of formation of granular leukocytes, and the mechanism of their reaction in health and disease, (3) the aleukemic and leukemic states, explained on the morphologic and physiologic basis of the maturation of leukocytes, (4) models and charts illustrating use of laboratory tests in the diagnosis of familial hemolytic anemia

JACOB GFRSHON-COHEN, HARRY SHAY, SAMUEL S FELS, THEODORE MERANZE and DAVID R MERANZE, Philadelphia

*The Thymus Experimental Studies in Its Physiology* Exhibit of charts, pictures, pathologic specimens properly mounted, roentgenograms and the experimental animals themselves arranged to demonstrate the effect of the thymus on the function of the genital system, the pituitary, adrenals and general body growth The studies were made by inducing atrophy of the thymus gland by roentgen irradiation

H J CORPER, National Jewish Hospital, Research Department, Denver

*Immunity in Tuberculosis, Historical and Experimental* Exhibit demonstrating the various phases of experimental immunity and its production, illustrated historical album of immunity in tuberculosis

VIRGIL H MOON and DAVID R MORGAN, Department of Pathology, Jefferson Medical College, Philadelphia

*Shock, Its Mechanism, Pathology and Sequelae* Exhibit dealing with the mechanism of shock, shown by a diagram illus-

trating the operation of the "vicious circle", the pathology of shock shown by gross specimens and by illuminated photomicrographs from human cases and from animals, presentation of progressive stages of pulmonary edema and pneumonia as sequelae of sublethal shock, explanation of the differentiation of shock from hemorrhage

HENRY C SWEANY and ROSALIND KLASS, Municipal Tuberculosis Sanitarium, Chicago

*X-Ray Diffraction Analysis as Applied in Pneumococcosis* Exhibit of illustrations photographs, charts, transparencies and gross pathologic specimens showing possibilities of x-ray diffraction as an analytic procedure in the determination of detrimental silica diffraction patterns of various minerals as well as a typical silica pattern compared to patterns obtained by analysis of powdered human lung tissue from patients who were exposed to various dusts, patterns of normal and tuberculous lungs, chemical analysis for silica microscopic and gross pathology

FRANK B YOUNG Long Beach Calif

*Diagnosis of Acute Alcoholism by Chemical Methods* Exhibit showing apparatus for securing alcohol from the exhaled air saliva and urine by use of distillation under partial vacuum, colorimeter for comparison of test solution with solutions of standardized strength technique of making tests, based on the reduction of potassium bichromate by alcohol

HERMANN BECKS University of California, George Williams Hooper Foundation for Medical Research and College of Dentistry, San Francisco

*Experimental Production of Osteodystrophia Fibrosa Cystica in Dogs by Deficient Diets* Exhibit of photomicrographs of histologic material showing experimental production of osteodystrophia fibrosa cystica in dogs by deficient diets

CHARLES WEISS HAROLD BRUNN and A KAPLAN Mount Zion Hospital San Francisco

*Cellular Immunity* A Comparison of humoral and tissue immunity to staphylococcus toxin B Cellular proteinases in inflammation and in experimental tuberculosis in rabbits Exhibit (a) dealing with immunity to staphylococcus toxin (b) dealing with cellular proteinases in inflammation and in experimental tuberculosis in rabbits with data on the cathepsin dipeptidases and carboxypolypeptidases of polymorphonuclear white blood cells and monocytes of inflammatory exudates as well as those produced by the intrapleural injection of the phosphate of the tubercle bacillus

CHEVALIER L JACKSON Philadelphia

*Cancer of the Larynx* Exhibit showing histopathology especially as determined by biopsy and its importance in selection of method of treatment early diagnosis and its relation to end results demonstrated by transparencies gross specimens and motion pictures, technique of laryngofissure laryngectomy and irradiation, with statistics of five year cures

F W HARTMAN and VICTOR SCHELLING Henry Ford Hospital, Detroit

*Studies on Hexyl-Chloro-M Cresol and Other Carbocyclic Antiseptics* Exhibit of charts, tables, cultures and photographs presenting experimental and clinical observations on a new chemical of high antiseptic activity, observations on other chemicals of the same general composition, effect of acids on the antiseptic activity of this group of compounds, comparative value of this group of carbocyclic antiseptics contrasted with that of the salts of heavy metals as indicated by phenol coefficient studies, toxic index studies, and clinical applications

BENJAMIN T TERRY, Tacoma General Hospital, Tacoma Wash

*Three Aids in the Rapid Diagnosis of Tissues* Exhibit showing (1) practical gross diagnosis, (2) a new, easily made inexpensive microtome for fresh and fixed tissues (3) an inexpensive easily made instantaneously acting differential stain for fresh or fixed tissue Clinical facts presenting a

problem will be given In order to arrive at a solution surgical or autopsy tissues will be shown and important practical gross diagnostic features will be stressed The diagnosis will be established by a microscopic examination of sections cut on the new microtome and stained by the new stain Lectures, technique, and interesting and important diagnostic points will be shown in moving pictures Those interested can learn to make and use the microtome and stain Abundant opportunity to practice under supervision will be afforded

HARRY C SCHMEISSER and JOSEPH L SCRIVANI University of Tennessee, Memphis

*History of Medical Art* Exhibit of photographs showing ancient, medieval, modern and contemporary medical art

HENRY DOUBILET, RALPH COLP and I L GERBER The Mount Sinai Hospital New York

*Sphincter of Oddi—Experimental and Clinical Studies* Exhibit of original apparatus shown for the kymographic recording of the resistance of the human sphincter of Oddi to continuous perfusion demonstration of actual practical bedside procedure effect of drugs shown by kymographic tracings, demonstration of physiologic principles of visualization of the biliary tract with iodized oil, methods for the detection of pancreatic reflux and for visualization of the pancreatic duct in the human being, instrument for the endocholedochal section of the sphincter of Oddi results of both experimental and clinical endocholedochal sphincterotomy, as regards the safety and effectiveness of the procedure

WILLIAM STEVENSON and B S KLINE Mount Sinai Hospital Cleveland

*Exact Photographic Medical Illustration* Exhibit of prints with colors of original photographed specimens including gross clinical and gross and microscopic pathologic specimens exactly reproduced, color prints of color transparencies, steps in the preparation of the exact color prints and color transparencies of gross and microscopic specimens and of color prints

LEWIS WATERS Department of Medical Art, Baylor University College of Medicine, Dallas, Texas

*Art and Photography as Applied to Medical Illustration* Exhibit of drawings photographs and transilluminated pictures in black and white and in color illustrating methods of medical illustration including methods of making motion pictures, presentation of a new color process for photomicrography and clinical photography

JOHN D CORBIT JR, Philadelphia General Hospital, and HERMAN A SHELANSKI, University of Pennsylvania, Philadelphia

*Silver Picrate in the Control of Bacterial, Yeast and Protozoan Infections* Exhibit showing methods of diagnosis for infections due to *Momilia albicans* and *Nisseria gonorrhoeae* and for infestations due to trichomonad flagellates, stramen, and cultural methods for these organisms together with the effect on them of silver picrate in vitro and in vivo

#### Section on Nervous and Mental Diseases

The representative to the Scientific Exhibit from the Section on Nervous and Mental Diseases is Roland P Mackay Chicago Motion pictures will be shown in addition to the exhibits in an adjoining area

C W IRISH Los Angeles

*Spontaneous Cerebral Vascular Lesions and Distributions of the Major Vessels* Exhibit of photographs of pathologic specimens demonstrating the various sites and types of cerebral vascular lesions color negatives of injected cerebrum different colors demonstrating the distribution of each major vessel external views of the cerebrum, sagittal sections and coronal sections

A E BENNETT AVIS PURDY and HELF JORDA Bishop Clarkson Memorial Hospital Omaha

*History and Development of Modern Psychiatric Nursing* Exhibit of pictures and charts showing the historical evolution of modern psychiatric treatment from 4000 B C to the present



sition from primitive, inhuman nursing management to the modern periods of reform in state hospital development and the mental hygiene movement, the present trend of treating the mentally ill through well equipped psychiatric units in general hospitals, illustrated through photographs, charts, teaching manual and motion pictures

CHARLES P LARSON, Western State Hospital, Fort Steila-  
coom, Wash

*Mountings of Neuropathologic Specimens* Exhibit of speci-  
mens of neuropathologic interest, including unusual tumors,  
aneurysms, and other specimens mountings are of the watch  
glass type, the total cost per specimen averaging less than  
60 cents, method of mounting will be demonstrated the finished  
product is notable for its maximum visibility and beauty

TRACY J PUTNAM and H HOLSTON MERRITT, Boston City  
Hospital, Boston

*Experimental and Clinical Studies of New Anticonvulsant  
Drugs* Exhibit presenting a list of old and new compounds  
tested, diagrams of method of testing on animals and charts  
of results, formulas of drugs found effective in animals,  
statistics of patients treated with most effective compounds,  
representative case histories

G WILSE ROBINSON and G WILSE ROBINSON JR Kansas  
City, Mo

*Experiences and Studies in the Use of Insulin in Various  
Forms of Psychoses* Exhibit of (a) graphs, each of which  
represents the entire course of treatment of individual patients  
of a series of selected cases showing behavior, with a quanti-  
tative graph of behavior changes from week to week weekly  
laboratory determinations taken every hour during the course  
of the treatment, with changes in blood sugar blood counts  
hemoglobin and differentials, and metabolism as measured by  
the consumption of oxygen, clinical charts carried continuously  
from beginning to end of the entire course of treatment,  
and observable clinical reactions as measured by depth of coma  
severity of spasmodic reactions and psychic state during each  
individual treatment, (b) presentation of results in the treat-  
ment of acute alcoholic psychoses with insulin (c) presenta-  
tion of technical equipment and improvements modifications  
of original procedure, which have aided in promoting under-  
standing and minimizing complications

HENRY R VIETS and ROBERT S SCHWAR Massachusetts  
General Hospital, Boston

*Myasthenia Gravis Diagnosis and Treatment with Pro-  
stigmine* Exhibit of charts giving the principal symptoms age  
of onset and prevalence the use of prostigmine as a diag-  
nostic measure elucidated by charts and motion pictures as  
experienced at the Massachusetts General Hospital

PAUL A OLFARI, Mayo Clinic Rochester Minn HAROLD  
N COLE, Cleveland J LARLF MOORE Baltimore, JOHN H  
STOKES Philadelphia, UNO J WHI Ann Arbor Mich  
THOMAS PARRAN, R A VONDERLIEHR and LIDA J USHTON,  
Washington, D C

*Results of the Treatment of Tabes Dorsalis* Exhibit con-  
sisting of a group of graphs showing the value of different  
systems of treatment symptoms most readily influenced value  
of early treatment of syphilis versus late treatment of neuro-  
syphilis and the value of the fever therapy in tabes dorsalis

ABRAHAM LOW, Chicago

*Mchazol Shock Therapy* A motion picture demonstrating  
one of the newer treatments of functional psychoses

J R JUEGER, Denver

*Neurosurgery Operations* Motion picture demonstration in  
color showing the various standard operations performed on  
the brain, spinal cord and peripheral nerves

#### Section on Dermatology and Syphilology

The representative to the Scientific Exhibit from the Section  
on Dermatology and Syphilology is Clark W Finnerud Chi-  
cago A special feature of the section is a group of exhibits  
on industrial dermatoses

JOSEPH V KLAUDER, Philadelphia

*Swine Erysipelas Infection* Exhibit of charts concerning  
the infection in (1) swine, (2) the organism, (3) the infection  
in man, (4) occupation of patients involved, photographs of  
the infection in swine and in man, specimens of the infection  
in swine, stained smears of the organism, cultures of the  
organism, colored motion pictures of the infection in man

THEODORE CORNBLEET and HENRY SCHORR, Chicago

*Is Psoriasis a Metabolic Disease?* Exhibit showing the sugar  
content of the skin in health and its variations, the changes  
in the normal content in psoriasis (both in the lesions and the  
normal skin), various agents and maneuvers used in the treat-  
ment of psoriasis and how they affect the sugar content of  
the skin, data used to support a metabolic theory of the cause  
of psoriasis

J E MOORE, Baltimore and R A VONDERLIEHR, United  
States Public Health Service, Washington, D C

*The Diagnosis of Syphilis* Exhibit of lantern slides pre-  
senting the differential diagnosis of syphilis by clinical and  
laboratory means in complete and condensed form

GEORGE V KULCHAR and JOHN F CARD, Stanford Univer-  
sity Hospital, San Francisco

*Divided Doses of Typhoid Antigen H (Formalized) in  
the Treatment of Neurosyphilis* Exhibit of (1) charts illus-  
trating the method of preparation of the antigen by formalde-  
hyde precipitation, (2) description of the method of its use in  
the treatment of neurosyphilis, particularly in patients not suit-  
able for other forms of fever therapy, (3) charts illustrating  
daily fever curves in response to graduated doses, (4) charts  
illustrating clinical and serologic results

HARRY E ALDERSON, San Francisco

*Rhinoscleroma* Exhibit of photographs and photomicro-  
graphs of all rhinoscleroma cases reported in California with  
naso examples from San Salvador

HIRSH C MILLER and HOWARD MORROW, University of Cali-  
fornia Medical School, San Francisco

*Coccidioidal Granuloma* Exhibit demonstrating (1) the  
clinical types of the disease by photographs and x ray films,  
(2) the pathology with specimens and photomicrographs, (3)  
the cultural characteristics and types of the organism, (4)  
immunity as shown by skin reactions, (5) habitat of the  
organism, (6) results of animal inoculations and (7) inter-  
esting historical facts

SAMUEL AYERS JR and NELSON PAUL ANDERSON, College  
of Medical Evangelists, Los Angeles

*Natural Color Photography in the Teaching of Dermatology*  
Exhibit of lantern slides illustrating various disorders of the  
skin showing recent development of improved color film to  
photograph cutaneous lesions in their natural color Demon-  
stration of apparatus and technic employed

ARTHUR E INGELS, San Francisco

*Poison Oak Plants, Extracts Dermatoses and Treatment*  
Exhibit showing poison oak dermatitis, poison oak remedies  
and so on pressed poison oak plants in all its stages, products  
of poison oak extract, mode of administration, different phases  
of poison oak dermatitis, photographs of conditions

MARICE DORNE, A W STILLMANS and T K LAWLESS,  
Chicago

*Treatment of Argvria* Motion picture demonstration in  
color of argvria the technic of treatment and the results

MARY A MARCELS, New York

*Micrologic, Histologic and Therapeutic Observations in  
Psoriasis* Exhibit of photomicrographs of psoriatic cases,  
photomicrographs showing the micro organism in the lesions  
of psoriasis, photomicrographs of the micro-organism pre-  
pared from culture at different stages which demonstrate  
different phases of the development of the micro organism for  
its specific identification

#### Symposium on Industrial Dermatoses

United States Public Health Service Cooperating with the  
Section on Dermatology and Syphilology

LOUIS SCHWARTZ, United States Public Health Service, New York, and MARION B. SULZBERGER, Postgraduate Medical School, Columbia University, New York

*Occupational Dermatoses* Exhibit of charts, photographs and moulages, miscellaneous small samples of actual materials, such as rubber and wood, which have caused industrial dermatoses

HARRY R. FOERSTER, Milwaukee

*Occupational Dermatoses* Exhibit of photographs of occupational dermatoses

JOHN G. DOWLING, Boston

*Occupational Dermatitis* Exhibit of transparencies showing the location and type of eruptions found in various industrial workers, a series of pictures depicting the various stages seen in the production of dermatitis factitia

C. GUY LANE, Boston

*Education in Occupational Dermatoses* Exhibit of posters, indicating the needs and purposes of such education, the group to whom it should be directed, plans for course in occupational dermatoses, and outline of subjects to be covered

#### Section on Preventive and Industrial Medicine and Public Health

The representative to the Scientific Exhibit from the Section on Preventive and Industrial Medicine and Public Health is Paul A. Davis, Akron, Ohio

ERNEST C. DICKSON, CHARLES E. SMITH and ARTHUR LACK JR., Stanford University School of Medicine, San Francisco

*Acute Primary Type of Infection with Fungus Coccidioides* Exhibit of diapositives and roentgenograms representing the acute primary stage of coccidioides infection and the secondary stage of coccidioidial granuloma, diapositives showing the development of chlamydospores, which are the etiologic agent of the primary type, and of the endospores, which cause spread of the infection in coccidioidial granuloma, spot map of the incidence of valley fever, the local name for the primary form in the San Joaquin Valley, and a chart indicating the clinical course of the primary form

EDWARD MATZGER, Southern Pacific Railroad Hospital, San Francisco, and LEROY ABRAMS, Stanford University, Palo Alto, Calif.

*Allergies in Railroad Workers—Methods Used in Control* Exhibit of mounted specimens collected in California, Oregon, Idaho, Arizona, Utah, New Mexico, Texas and parts of northern Mexico, charts indicating the chronology of pollination at various centers of population, charts indicating abundance of plants and relative amounts of pollen produced, microscopic demonstration of pollens, charts classifying nine years of clinical allergic studies in 1234 patients, factors of the seasonal and perennial groups, methods of treatment, importance of botanic data to seasonal complaints, and therapeutic results

HERMANN SOMMER and K. F. MEYER, Hooper Foundation, University of California Medical Center, San Francisco

*Plankton and Paralytic Shellfish Poisoning* Exhibit showing (1) distribution of the disease, (2) epidemiology along the Pacific Coast from Alaska to Los Angeles, correlated with laboratory observations, (3) cultures of the poisonous plankton, (4) marine aquarium with three kinds of shellfish involved, (5) symptoms in animals and man with treatment and prevention

S. E. GOULD, Eloise Hospital, Eloise, Mich., and Wayne University College of Medicine, Detroit and I. FOREST HUDDESON, Michigan State College, East Lansing, Mich.

*Undulant Fever (Brucellosis)* Exhibit of models and transilluminated photographs and diagrams, illustrating (1) the sources and methods of spread of human infection (2) fever charts and anatomic location of disease in acute and chronic cases, (3) diagnostic methods, including intradermal brucellergen test, rapid agglutination test, opsonic test and culture, and (4) methods of control of infection and effect of treatment with brucellin

JOSEPH FELSEN, New York

*Prevention, Diagnosis and Treatment of Acute Bacillary Dysentery* Exhibit showing (1) epidemiologic studies, the prevention and control of institutional and hospital outbreaks, educational program for the public in the prevention and control of diarrheal disease, recognition of the new forms of bacillary dysentery by the family physician, mass vaccination, (2) typical and atypical cases of acute bacillary dysentery, the diagnostic laboratory triad, the characteristic three stage pathology, (3) principles of therapy, different methods of therapy for each of the three stages of acute bacillary dysentery, use of vaccine to prevent the chronic phase of the disease

#### Section on Urology

The representative to the Scientific Exhibit from the Section on Urology is R. S. Ferguson, New York

WIRT B. DAKIN, Los Angeles

*Foreign Bodies in the Urinary Bladder* Exhibit of a large number of foreign bodies found in the urinary bladder, together with descriptions of each case and a review of the literature

HENRY SANGREE, Philadelphia, and ROBERT HOTCHKISS, Cornell Medical Center, New York

*Fertility in the Male: Clinical and Surgical Treatment* Exhibit of charts, models and photographs of congenital anomalies and endocrine disturbances, colored drawings, photomicrographs and microscopic slides portraying normal and abnormal sperm, together with a complete analysis of cases treated, motion picture in color illustrating the operation of epididymovasostomy, the various anatomic and inflammatory conditions causing infertility in the male and photomicrographs showing the action of normal and abnormal sperm in various mediums

HENRY A. R. KREUTZMANN, M. L. POLSKY and BENJAMIN STRAUSS, San Francisco

*Anatomy of the Intramural Portion of the Normal Ureter* Exhibit showing the intramural portion of the ureter, adjacent bladder wall and trigon sectioned and various strains of these sections showing the muscles, nerves and connective tissue in this region. The true relationship of the various structures is depicted by means of a transparency case and also by dissections

ROGER W. BARNES, Los Angeles

*Embryology of the Prostate* Exhibit consisting of models of the prostate of the human fetus ranging in age development from twelve weeks to term, photomicrographs of cross sections and longitudinal sections of the prostate, and a fetus representing the age at which each model is made

ROBERT A. MACARTHUR, Detroit

*Hematuria* Exhibit of transparencies illustrating practically all the pathologic conditions causing hematuria throughout the genito-urinary tract, these conditions are demonstrated by means of roentgenograms, cystograms, pyelograms, drawings, cystoscopic views in color and colored photographs

#### Section on Orthopedic Surgery

The representative to the Scientific Exhibit from the Section on Orthopedic Surgery is Norman T. Kirk, San Francisco

PHILIP LEWIN, Chicago

*Newer Conceptions and Methods of Teaching Orthopedic Surgery to Undergraduate Students* Exhibit of transilluminated roentgenograms and anatomic models dealing with the embryology development, anatomy, physiology and chemistry of orthopedic structures, and illustrating congenital defects, deformities and disabilities of developmental, nutritional, postural, paralytic, infectious, myogenic, neurogenic, traumatic, fibrogenic, vascular and neoplastic origins

FRANK A. LOWE, San Francisco

*Congenital and Acquired Clubfoot: Manipulation and Surgical Models* Exhibit of models of clubfoot before and after correction, motion pictures of cases before and after treatment

various methods of molleskin adhesive traction for fracture treatment, sand bag weight and pulley for fractured femurs

LEROY C ABBOTT, F C BOST and JOHN B SAUNDERS, San Francisco

*Leg Lengthening and Fractures of the Hip* Exhibit illustrating the anatomy and operative technic of the lengthening of the tibia and fibula by means of charts, drawings, photographs, anatomic dissections, x-ray transparencies and apparatus, dissections showing the main features of the anatomy of the leg and of the actual operation apparatus illustrating its historical development, fractures of the neck of the femur demonstrated by dissections and x-ray transparencies

K K SHERWOOD, Seattle

*Management of Chronic Arthritis* Exhibit of photographs roentgenograms and charts, emphasizing (1) the importance of the complete diagnosis in all cases of chronic arthritis, (2) the value of laboratory tests, especially vitamin C determinations and sedimentation and cell volume studies, (3) that roentgenograms should be used in ruling out disease other than arthritis and in giving a prognosis but not as a means of making the diagnosis, (4) the importance of general therapeutic measures (rest, diet, symptomatic medication, physical therapy, orthopedic measures and psychotherapy), the importance of dividing atrophic and hypertrophic arthritis into small groups presenting the same clinical syndromes

L D SMITH, Milwaukee

*Mechanism, Treatment, Internal Fixation of Cervical Fracture of the Femur* Exhibit of model of pelvis and hip joint showing the action of muscles on the joint and on the neck of the femur, method of reduction demonstrated, human specimens showing the anatomy of the hip in relation to its fracture and its treatment, films and slides of internally fixed hip fractures, instruments for inserting the four flanged spike, thus maintaining reduction in a fractured hip

CHARLES MURRAY GRATZ, New York

*Fascial Adhesions in Low Back Pain and Arthritis* Exhibit dealing with fascial adhesions shown anatomically, radiologically and histologically, rationale of selecting cases in which fascial adhesions should be treated, result of treating fascial adhesions over a period of years, a new method of measuring limitation of motion of the back

J E M THOMSON and C FRED FERCIOT, Lincoln, Neb

*Surgical Treatment of Ununited Fractures of the Patella* Exhibit of models drawings and roentgenographic films demonstrating the advantages of surgical treatment of certain fractures

DAVID H KLING, Los Angeles

*Physiology and Pathology of Synovial Membrane and Synovial Fluid* Exhibit of photographs tables and descriptions of precipitation phenomena of synovial mucin, comparative sedimentation, bilirubin content of joint effusions fat in traumatic effusions, enlargements of photomicrographs showing the cytology of joint effusions in different types of arthritis, photomicrographs showing systematic method of dissection of the knee joint, which demonstrates variations of structure and function

C HOWARD HATCHER and PETER M WASBOTEN, University of Chicago Clinics, Chicago

*Correlation of Pathologic and Roentgenologic Characteristics of Skeletal Diseases* Exhibit of histologic preparations demonstrating the pathologic characteristics of various bone and joint diseases with x-ray transparencies correlating the pathologic and roentgenologic observations accompanied by colored photomicrographs, panels are prepared illustrating bone tumors, tuberculous arthritis, chronic nontuberculous arthritis, osteomyelitis and aseptic necrosis lesions of bone

RALPH SOTO-HALL and KEENE O HALDENAN, San Francisco

*Neurotrophic Joint Disease (Charcot Joint)—Its Development Diagnosis and Treatment* Exhibit of roentgenograms which were studied to throw light on the causative factors

A statistical tabulation of the entire series of patients with neurotrophic joint disease indicating the relative value of clinical signs and laboratory aids in diagnosis, photographs, drawings and roentgenograms illustrating a new method for the operative fusion of Charcot joints in two stages

S L HAAS, San Francisco

*Growth Changes in the Spine, An Experimental and Clinical Study* Exhibit showing that definite length growth changes in the vertebrae of animals takes place at the epiphysal plate, injuries to the epiphysal cartilage plates, comparative study of the growth changes in the vertebrae of man and of animals both by roentgenograms and by histologic study after fusion operations

RUDOLPH SKARDA, University of California Medical Center, San Francisco

*Anatomical Surgical Preparations* Exhibit of a series of preparations of actual dissections prepared by a new technic, of value in teaching, in refreshing the surgeon on anatomic details and showing surgical approaches

HENRY W MEYERDING, Mayo Clinic, Rochester, Minn

*Spandylolisthesis, An Etiologic Factor in Baa-lache* Exhibit consisting of (1) roentgenograms illustrating site and extent of deformity and postoperative surgical fusion, (2) anatomic models in wax demonstrating defects and surgical treatment, (3) motion pictures illustrating various deformities encountered on inspection of the spine, extent of limitation of motion and phases of conservative and surgical treatment

J B DE C M SAUNDERS, University of California Medical School, San Francisco

*Development and Growth of the Fetal Skeleton* Exhibit of fetal skeletons prepared by a new technic, charts, photographs and diagrams demonstrating inherent factors which control and determine characteristic form and structure, results of quantitative examination of growth changes in the bones, relationship of sidereal time to development, effect of predetermined growth rates as modifying skeletal form and proportion

HENRY H KESSLER, Newark, N J

*Rehabilitation of Industrial Amputation Cases* Exhibit of photographs of arm amputation cases including plaster models, prosthesis and motion picture demonstration

#### Section on Gastro-Enterology and Proctology

The representative to the Scientific Exhibit from the Section on Gastro Enterology and Proctology is J A BARGEN, Rochester, Minn

H F HANEY, Department of Physiology, University of Oregon Medical School, Portland

*Experimental Approach to Some Problems in Gastro-Enterology* Exhibit showing I Relation of extrinsic nerves to the function of the cardia (a) diagram to show location of nerve sections, (b) diagram of balloon setup used in obtaining tracings, (c) tracings obtained II The use of chronic accessible closed intestinal loops in the study of absorption, (a) diagram of loop and method of entering loop, (b) preserved loop specimens, (c) sagittal section through closed loop and anterior abdominal wall with needle in place III A technic for end to end anastomosis of the small intestine, (a) diagram of operative procedure, (b) preserved specimens, (c) histologic picture at various stages in process of healing Photomicrographs and sections

STANLEY H MENTZER, University of California Medical School, San Francisco

*Gallstones* Exhibit of gallstones of every known variety, without duplication, gathered from more than 40,000 specimens

ALLAN J HRUBY, LEO HARDT, JOHN S COULTER, CLEMENT MARTIN CARROLL COOK and KARL HENRICHSEN, Municipal Tuberculosis Sanitarium, Chicago

*Gastrointestinal Tuberculosis* Exhibit of roentgenograms and transparencies of gastrointestinal and pulmonary conditions, pathologic specimens and proctoscopic color photographs,

charts summarizing the diagnosis and treatment of gastrointestinal tuberculosis, charts showing a study of diagnostic data that have been confirmed by postmortem examination charts showing the results of a comparative study of the treatment of gastrointestinal tuberculosis

WENDELL G. SCOTT, St. Louis

*Kymographic Studies of Gastrointestinal Movements* Exhibit of a series of diagrams and roentgen kymograms demonstrating the principle and method of roentgen kymography, films showing alterations in the peristaltic movements of the stomach in various diseases, motion picture demonstrating the peristaltic movements of the small intestine and colon

DAVID J. SANDWEISS, H. C. SALTZSTEIN and A. A. FARBYAN, Detroit

*The Relation of Sex Hormones to Peptic Ulcer* Exhibit will consist of charts showing clinical data bearing on this subject. It will include mounted specimens of the stomach and jejunum of Mann-Williamson dogs showing the effect of various sex hormones on these experimental ulcers. The effect of these hormones on cinchophen ulcers will also be presented.

MALCOLM R. HILL, Los Angeles

*History of Illustration in Proctology* Exhibit consisting of reproductions and art drawings depicting the progress medical science has made in dealing with disease as related to proctology, the relative progress made in the art of illustration.

CLAUDE C. TUCKER and C. ALEXANDER HELLWIG, St. Francis Hospital, Wichita, Kan.

*Proctologic Tumors: Diagnostic Difficulties and Pathology* Exhibit of transparencies and pathologic specimens illustrating the different tumors in the anorectal region and showing that clinical differentiation between harmless lesions and malignant tumors is often impossible and routine histologic examination of all removed tissue is indicated.

FELIX CUNHA and FRED C. BLAKE, San Francisco

*Intra-gastric Photography and Its Clinical Application, Use of the Flexible Gastroscope in the Diagnosis of Gastric Lesions* Exhibit demonstrating camera used, actual method of taking snapshot and method of supplying current, cameras outlining principles maintained in construction and the principles of physics or optics involved in taking a photograph, source of generation of power for the lighting up of the stomach used in taking the photograph gastroscopically with charts showing the principle of physics involved, construction, and artists' drawings outlining various pathologic conditions encountered and easily differentiated, a motion picture demonstrating the entire technique of flexible gastroscopy.

### Section on Radiology

The representative to the Scientific Exhibit from the Section on Radiology is E. E. DOWNS, Woodbury, N. J.

HARRY H. BOWING and R. E. FRICKE, Mayo Clinic, Rochester, Minn.

*Carcinoma of the Uterine Cervix: A Summary of Treatment and Results* Exhibit of charts and graphs showing (1) that the average age is 49, (2) epithelioma is the chief lesion (93.5 per cent), (3) a large majority of patients (84 per cent) had lesions of high grade malignancy (Broders), (4) a large number of the patients had inoperable lesions (93 per cent), (5) Results of treatment (five year cures): stage 1, 69.2 per cent, stage 2, 60.2 per cent, stage 3, 29.7 per cent, stage 4, 6.5 per cent, (6) Palliation occurs in all cases, (7) Hospital mortality of 1 per cent occurred entirely in the inoperable group, (8) The three year cure rate shows improvement after more complete treatments were given, (9) Technique of the radium and roentgen therapy as outlined for an average case with a stage three involvement with universal tube applicator, size, amount of radium and filtration, the treatment time, intervals between applications and length of course in days near or at the end of the radium treatment, roentgen therapy given as outlined, (10) reexaminations are done at three month intervals for the first year, at six month intervals the second year and every year thereafter.

JAMES F. KELLY and D. ARNOLD DOWELL, Omaha

*Roentgen Treatment of Acute Peritonitis and Other Infections with Mobile Apparatus* Exhibit illustrating the advantages of a specially designed mobile therapy apparatus to be used at the bedside in the treatment of serious acute infections such as peritonitis, gas gangrene, pneumonia, surgical mumps, Ludwig's angina, erysipelas and other infections, clinical data of many cases treated with this apparatus as well as the technique and advantages and indications for its usage.

H. O. MAHONEY, Oak Park, Ill., B. J. ANSON and ROY F. DENT, Northwestern University Medical School, Chicago

*Study of Sectional Anatomy by Means of the Roentgen Ray* Exhibit demonstrating the preparation of sections and the technique employed in roentgenographing them, representative selection of roentgenograms of sections showing advantages which roentgenography provides in the study of sectional anatomy.

RICHARD DRESSER, Boston

*Million Volt Roentgen Therapy* Exhibit of photographs of the electrostatic belt-conveyor generator developed at the Massachusetts Institute of Technology, data in the form of charts and graphs regarding the physical properties of million volt roentgen rays, data regarding immediate clinical results.

HENRI COUTARD and MAX CUTLER, Chicago Tumor Institute, Chicago

*Carcinoma of the Larynx—Diagnosis and Radiation Treatment* Exhibit containing illustrations classifying the various forms of laryngeal carcinoma, demonstrating methods of diagnosis and indicating their radiologic treatment.

WILLIAM E. HOWES, Brooklyn

*Planigraphy* Exhibit of drawings to demonstrate the principles of planigraphy, series of transparencies showing roentgen ray films and planigraphic films in the same case including foreign body in the mediastinum, precollapse and postcollapse tuberculous cavities, mediastinal tumors, metastatic lung tumors, roentgen ray pleural pneumonia and other conditions.

### EDUCATIONAL CLASSIFICATION

#### Government and National Organizations

The educational exhibits include those exhibits from national and state organizations and government institutions which are put on in the name of the institution rather than of individuals and which are intended to show progress in the particular activities with which those institutions deal.

These exhibits are not open to medal awards, but a special certificate of merit is presented to the best exhibit in this classification.

UNITED STATES NAVY, San Diego, Calif.

*Medical Department, U. S. Navy* Exhibit showing medical equipment and practice in hospitals, aviation, submarines and marine corps.

CHILDREN'S BUREAU, U. S. DEPARTMENT OF LABOR, Washington, D. C.

*Safe Home Delivery* Exhibit of bed and other equipment for aseptic technique used in home delivery, charts showing number and percentage of live births occurring in the hospitals and homes in urban and rural areas, charts showing number and percentage of urban and rural births delivered without a physician, poster material for adequate hospital equipment for serious complications of childbirth, essentials for safe home delivery.

AMERICAN HEART ASSOCIATION, New York

Exhibit of educational material including books, pamphlets and leaflets on various phases of cardiovascular disease.

AMERICAN HUMAN SERUM ASSOCIATION, Los Angeles

*Convalescent Human Serum* Exhibit of charts showing series of cases treated and protected with the various convalescent serums, display of the various types of convalescent serums both liquid and dried, demonstration of new apparatus used in the handling of human convalescent serum.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Berkeley, Calif

*Your Physical Therapy Technician—Schools Training Therapy* Exhibit showing physical therapy schools on an animated map posters showing the theory and practical courses required in the approved schools, cartoons entitled "All in the Days Work"

NATIONAL TUBERCULOSIS ASSOCIATION, New York

*Diagnosis of Tuberculosis* Exhibit of charts and roentgenograms illustrating the difficulty of making diagnosis of pulmonary tuberculosis unless the roentgen ray is used

UNITED STATES PHARMACEUTICAL ASSOCIATION, San Francisco

Exhibit illustrating methods for determining the hydrogen ion concentration of some official products the preparation of buffer solutions and their application demonstrations of official products used in ophthalmic and dermatologic practice, and a special exhibit of the official ointments

AMERICAN SOCIETY FOR THE CONTROL OF CANCER, New York

Exhibit of charts and diagrams showing the objectives and progress of the Women's Field Army since its inception summary of educational and organization activities

AMERICAN PHARMACEUTICAL ASSOCIATION, Washington, D C

*Notional Formulary Preparations* Exhibit of National Formulary preparations of interest to prescribing physicians, examples of preparations of therapeutic importance representing convenient and satisfactory dosage forms, and of vehicles designed to aid the physician in prescribing attractive and palatable prescriptions

ADVISORY BOARD FOR MEDICAL SPECIALTIES, Pittsburgh

Exhibit of charts graphs and literature describing the work of the Advisory Board for Medical Specialties and of the examining boards for certification in medical specialties including the American Boards of Ophthalmology, of Otolaryngology, of Obstetrics and Gynecology, of Dermatology and Syphilology, of Pediatrics, of Psychiatry and Neurology, of Radiology, of Orthopaedic Surgery of Urology, of Pathology, of Internal Medicine and of Surgery

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, New York

*Prevention of Blindness—A Public Health Program* Exhibit of charts illustrative material and motion pictures pertaining to the various aspects of sight conservation from the public health point of view namely antepartum care care of the eyes at birth vision testing, venereal diseases and eye health eye conditions in midlife and later, and material on the causes of blindness

NATIONAL BOARD OF MEDICAL EXAMINERS, Philadelphia

Exhibit of charts describing the work and progress of the National Board of Medical Examiners including graphic presentation of the results of its examinations

AMERICAN SOCIAL HYGIENE ASSOCIATION, New York

*Syphilis in Pregnancy and the Prevention of Congenital Syphilis* Exhibit of photographs transparencies specimens, charts and graphs showing the pathology of syphilis in pregnancy its diagnosis and treatment, and the prevention of congenital syphilis

AMERICAN COLLEGE OF CHEST PHYSICIANS, Monrovia, Calif

*Results of Collapse Therapy in Pulmonary Tuberculosis* Exhibit of roentgenograms showing pictures of the chest before and after instituting collapse therapy, plates illustrating artificial pneumothorax, phrenicotomy, pneumolysis and thoracoplasty pictures describing each of the plates and the various operations

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, Registry of Medical Technologists, Denver

Exhibit of charts teaching the importance of employment by hospitals and physicians of properly trained medical technologists charts giving data regarding approved training schools descriptive literature, blank forms

EXHIBITS OF ORGANIZED MEDICINE

The exhibits from the California Medical Association, Indiana State Medical Association and the headquarters group of the American Medical Association cover various activities of organized medicine

CALIFORNIA MEDICAL ASSOCIATION

*Organizational Activity* Exhibit of charts, photographs and graphs demonstrating some fifteen diversified organizational activities of the California Medical Association together with the work of special committees and councils and also representation of the distribution of membership in the several councilor districts of this great state

CALIFORNIA MEDICAL ASSOCIATION, CANCER COMMISSION

*Cancer Its Diagnosis and Treatment* Exhibit of photographs roentgenograms and pathologic specimens illustrating the problem involved in the diagnosis, treatment and prevention of cancer from the standpoint largely of the general practitioner, stressing importance of early diagnosis and possibility of cure in the common forms if diagnosis is early and proper treatment instituted

INDIANA STATE MEDICAL ASSOCIATION, BUREAU OF PUBLICITY AND THE EXECUTIVE COMMITTEE, Indianapolis

*An Antidote for State Medicine—the Preventive Medical Health Program of the Indiana State Medical Association* Exhibit of charts, maps, models and plans describing and depicting the Indiana program, copies of the *Journal of the Indiana State Medical Association* showing how physicians of the state are kept informed with regard to the program, and copies of releases from the Bureau of Publicity showing how the public is kept informed, literature prepared by the Bureau of Publicity

AMERICAN MEDICAL ASSOCIATION

*Council on Foods* Exhibit outlining various phases of the Council's activities, charts of food values in terms of dietary essentials, publications of the Council on the nutritional significance of foods and on normal and therapeutic diets

AMERICAN MEDICAL ASSOCIATION

*Council on Physical Therapy* Exhibit consisting of apparatus models and charts demonstrating certain fundamental physical principles of physical agents models showing layout of physical therapy departments for hospitals with fifty, 200 or 300 beds and over, charts portraying the recent accomplishments of the Council on Physical Therapy

At stated intervals, the following motion picture films will be shown

- Aids in Muscle Training*
- Occupational Therapy*
- Underwater Exercises*
- Effects of Heat and Cold on Circulation of Blood*
- Effects of Massage on Circulation of Blood*
- Therapeutic Exercise for the Shoulder Joint Following Dislocation*
- Contraction of Arteries and Arteriovenous Anastomoses*
- Treatment of Compression Fracture of the First Lumbar Vertebrae*

AMERICAN MEDICAL ASSOCIATION

*Council on Medical Education and Hospitals* Exhibit of statistics, diagrams and maps dealing with medical education, medical licensure and hospitals, publications of the Council, including essentials and revised lists of hospitals approved for residencies in specialties, hospitals approved for intern training schools for laboratory technicians, schools for physical therapists, and schools for occupational therapists

AMERICAN MEDICAL ASSOCIATION

*Bureau of Legal Medicine and Legislation* Exhibit showing effectiveness of basic science laws in preventing the licensing of incompetent practitioners, posters relating to legal medicine and legislation





# The TECHNICAL EXPOSITION

## A Panorama of Medical Progress

- The importance of the Technical Exposition to the medical profession is well demonstrated by the importance which the exhibitors themselves attach to it. Whether the locale is on the Eastern Seaboard, in the Middle West, or on the Pacific, one will invariably find most of the representative medical firms present with carefully planned exhibits and a capable staff of attendants. This year the Exposition in San Francisco will be true to type. It will include some 200 firms, occupying a total of almost 50,000 square feet in the great hall of the San Francisco Auditorium.
- In this vast array of products and services needed in the every-day practice of medicine, the physician will find a definite educational stimulus. It will, in truth, be a vivid panorama of "What's New and Useful to the Physician?" On every hand will be evidence of forward strides in research, important technical advances, improvements in standard products and services.
- The whole spirit of this great gathering will be one of service and courtesy. At every booth the physician will find well qualified representatives eager to discuss questions of mutual interest. He will discover that the principal aim of the exhibitor is to tell an interesting, informative story. Every display will have some special features worthy of careful study, whether it be pharmaceuticals and biologicals, medical books, instruments, apparatus, electrical equipment, dietetic products, or specialized services. Visitors are urged to take full advantage of the educational opportunities offered by the exhibits and visit them repeatedly.
- The Technical Exposition is located in close proximity to the Registration, the Postoffice and the Scientific Exhibits and will be a convenient place to meet friends or spend the time before, after, or between meetings. It will be open from 8 30 A M to 6 00 P M each day, closing Friday at noon.

*Will C. Brown*  
Superintendent of Exhibits

### APPARATUS and INSTRUMENTS

#### INCLUSIVE ALOE DISPLAY

The new Rulcliff retractor the DeBakey blood transfusion unit and other instruments and equipment will be shown by A S Aloe Company in Booths 97 98 and 99. A feature will be the display of Aloe Steeline modern treatment room furniture in a full color range also physical therapy equipment including the new Aloe X ray and the Aloe short wave unit. In Booth 110 the company will show a complete line of clinical laboratory equipment. See page 96.

#### INFUS D THERM DEMONSTRATIONS

At Booth 18 the Amerleann Medical Specialties Company will exhibit the Infus O Therm an instrument that permits blood temperature at needle point during intra venous infusion. Demonstrations will be given to show how a control dial gives any heat degree at a drop per minute rate assuring the solution entering the vein at blood temperature under constant heat control. The new Amisco Oscillometer will also be demonstrated. See page 60.

#### AMERICAN STERILIZER DISPLAY

The American Sterilizer Company will exhibit in Booth 116 an improved design of the 1065 hand end controlled surgical operating table to be displayed in conjunction with an American Luminaire Surgical Light. There will also be shown a small pressure steam sterilizer arranged for temperature control with the newly developed Amerleann Venum Drier intended to facilitate the drying of dressings and to eliminate the escape of steam into the sterilizing room. In addition a new roller type electric instrument sterilizer will be demonstrated.

#### NEW CASTLE ITEMS WORTH SEEING

At the Wilmet Castle exhibit Booth 77 there will be on display several pieces of apparatus brand new in idea and purpose. Surgeons particularly will want to be sure to visit the Castle booth. See page 70.

(Continued on next page)

### NEW HEMATOLOGICAL CASE

Bird Parker products to be exhibited at Booth 120 include Rib Back blades stainless steel renewable edge scissors, Lamey Lock forceps and the new B P hematological case. This case for obtaining bedside blood samples for red white and differential counts has several novel features including correction factor pipettes stainless steel lancet and special valves for diluting fluids. See page 102.

### TO SHOW HOW SYRINGES ARE MADE

Becton Dickinson & Company will occupy spaces 35-39. Here a complete line of products will be shown grouped according to fields of practice. In addition to this complete display of syringes needles Aseptio syringes thermometers and bandages diagnostic instruments and general utility items a demonstration of glass syringe making and thermometer blowing will be presented daily. Trained technical men will be in attendance at all times to answer questions concerning instruments displayed. See page 79.

### ORTHOPAEDIC AND X RAY TABLE

The Bell Fracture orthopaedic and x-ray table will be exhibited in Booth 20. Several new features will be stressed including the new Hitchcock two blade sacral rest. A live model will be used to show the various positions and adjustments of the table. The Bell Wire Gun and several other interesting bone instruments will also be shown. See page 92.

### OF INTEREST TO BONE SURGEONS

The DePuy Manufacturing Company will present new Vitallium items for bone work in Booth 22—flanged screws, Sherman plates, Venable type plates, Smith Peterson nails and White type nails. Pick-up screws fixation screws and ordinary nails for treatment of fractures in the scullies will be on display. Also the new combination Padula stretcher and hyperextension table for handling injured backs and the Carl P. Jones Well Leg splint for treatment of hip fractures. See page 100.

### SEE THE DEVILBISS DISPLAY

The complete Devilbiss line of atomizers, steam vaporizers and nebulizers will be shown in Booth 182. Specially featured will be illustrations based on x-ray research graphically depicting the coverage afforded by the atomizer in the application of solutions to the nose and throat. Copies of the illustrations for reference may be secured from the representative in charge.

### AIDS TO BETTER HEARING

Acousticon extends a cordial invitation to all physicians to visit Booths 239 and 240 where the firm will display its latest scientific developments—the Acousticon Aurograph which permits the selection of the acousticon assembly best suited to the patient's hearing requirements, the Coronation Acousticon and the Acousticon Crystal Acousticon which employs the cathode ray principle used in television permitting the patient to see what he hears.

### MECHANICAL RESUSCITATION

A study which appeared in the April Surgery, Gynecology and Obstetrics on Mechanical Resuscitation in Advanced Cases of Asphyxia will be featured in connection with exhibit of the E & J Resuscitator Booth 262. The paper gives an account of animal experiments in as-

phyxia at Cornell Medical Centre and also of clinical results obtained in the treatment of advanced asphyxia with the E & J Resuscitator. See page 108.

### PNEUMATOLOGY APPARATUS

Means for the administration of helium in oxygen therapy as well as anesthesia is one of the new items of pneumatology which will be displayed in Booth 4 by the Foregger Company Inc. See page 74.

### NEW SUCTION AND PRESSURE UNIT

The Gomco Surgical Manufacturing Corporation Booth 143 will display their new hospital suction and pressure unit with stainless steel cabinet. Physicians are invited to note particularly the remote control attachment which permits the entire pump unit to be placed a distance away from operating table allowing the entire output to be controlled by the small remote control unit. See page 74.



### HEIDBRINK GAS MACHINE

The Heidbrink kymetometer gas machines equipped with two chambered carbon dioxide absorbers for maximum economy in the use of some of the new anesthetic gases will be on display in Booth 180. Also to be shown are new improved oxygen therapy units such as the combination motor motorless oxygen tents and the nasal tube inhaling device.

### NEW TYPE BED PAN

In Booth 231 the Jones Metal Products Company will exhibit their modern Relax Bed Pan which because it is scientifically designed permits easy roll-on placement and provides more comfort for the patient as well as greater convenience for the nurse.

### "BABY ALL" EQUIPMENT

In Booth 241 there will be demonstrated a miniature low-priced formula room for the baby at home, also a new development known as the All-Nite Vaporizer-Humidifier which provides medicated or plain vapors continuously for 12 hours or less. See pages 76 and 82.

### MacGREGOR INSTRUMENT DISPLAY

A visit to Booth 173 of the MacGregor Instrument Company will give you an opportunity to examine the complete line of Vim products. In addition to Vim needles of Firth-Brennerley stainless steel and Vim emerald syringes there will be a full display of the new Vim Stern-Tectors Vim Needle-Trainers and Vim Carry-Alls. Surgeons are especially invited to see the Vim exhibit of Iron Arm surgeons' needles.

**VIM**

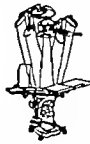
### INSTRUMENTS FOR THE SPECIALTIES

The V. Mueller & Company exhibit Booths 72-73 will cover highlights in the various fields of surgery. A large section will be devoted to the latest developments in ophthalmic instruments as well as those for ear, nose, throat and plastic work. Instruments and equipment representing the strides made in orthopaedic urological and general surgery will be displayed also modern ether, vapor and vacuum apparatus and other equipment. See page 100.



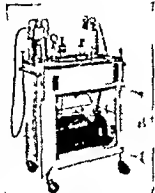
### MODERN SURGICAL LIGHTS

At Scamman-Morris Company's exhibit Booth 236 demonstrations will be given of modern surgical illumination with Operay Multibeam and Operay Surg-O-Ray lights which are now equipped with new type twin-arc projection lamps to give a selection of intensity and provide a safeguard against lights out hazards. The Scamman-Balfour general operating table and its adaptability to the newer surgical techniques will also be featured.



### SUCTION AND PRESSURE APPARATUS

The Sklar Manufacturing Company exhibit Booth 92 will feature the new improved heavy duty hospital model of the Bellevue Suction and Pressure Unit. It will also include the complete line of Sklar suction and pressure units as well as the Tompkins Portable Moorhead Rinks Ideal and other pumps for clinic and office use. See page 96.



### HEARING AID DEMONSTRATIONS

Recent developments in electrical hearing aids technique of individual fitting and audiometers will be demonstrated at the Sototone Corporation Booth 215. An unusual demonstration of how speech and music sounds to persons with different types of hearing impairment will be conducted by means of special phonograph recordings played through bone and air conduction receivers. Also demonstrated will be the Sototone Audiometer, a note worthy high precision instrument.

## DIAGNOSTIC EQUIPMENT

### BAUMANOMETER TO BE FEATURED

The exhibit of the W. A. Baum Company Booth 165 will show the latest Kompak Model Lifetime Baumanometer with many exclusive features, including the completely recessed embridge tube. The ever popular desk and wall models will also be prominently displayed. A new one-piece rubber bulb made of highest quality latex, another important improvement to the Baumanometer will be awaiting your critical examination. See page 27.

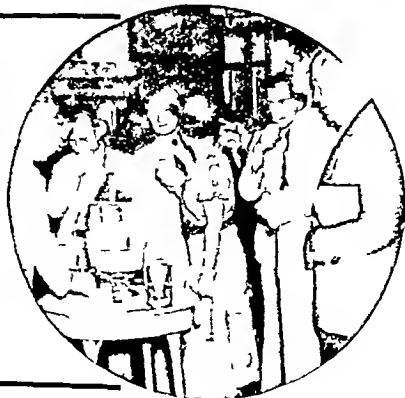


### ELECTRICAL INSTRUMENTS

The new Lempert-LeNee Headlite will be demonstrated in Booths 177 and 229 by Cameron Surgical Specialty Company. Latest developments in electrically lighted diagnostic and operating instruments for all parts of the body will also be shown. Of special interest will be the new inexpensive office model of the radio knife and other electrosurgical units for cutting, coagulation, desiccation and fulguration ranging in size up to the hospital model for the most radical and heavy surgery. See page 15.

## LIST OF EXHIBITORS

Name	Alse	Booth No	Name	Alse	Booth No
Abbott Laboratories	C	103-104	Armour Laboratories	E D	166-190
Agfa Ansco Corp	J	68-69	Austral Sales Corp	A	266
Allison Co W D	J	55-56	Avocations Magazine	A	264
Alco Co A S	H F	97-98-99-140	Aznoe's Nat Phys Exe	J	70
American Can Co	K	52-53	Bard Parker Co	F	120
American Inst of Baking	Corr	185	Bauer & Black	K	50
American Medical Assn	G	107 A	Baum Co W A	E	165
American Medical Spec Co	L	18	Bausch & Lomb Optical Co	D C	202-232
American Optical Co	D	205-205 A-206	Baxter Inc Don	T	2
American Safety Razor Corp	B	246	Becton Dickinson & Co	K	35-36-37-38-39
American Sealing Co	Corr	176-178	Bell & Howell Co	L	16
American Sterilizer Co	C	116	Best Foods Inc	D	194
Applikon Century Co	K	44	Bilhuber Kooll Corp	H	96
Arden Ray Line Co	C	230	Bo Peep Cuffs & Sleeves	D	195
Arlington Chemical Co	E	153			



## CAMBRIDGE CARDIAC APPARATUS

The Cambridge Instrument Company will exhibit two new instruments in Booth 119—the Simph-Trol Portable Model Electrocardiograph which weighs only 30 pounds complete, and the Portable Electrocardiograph-Stethograph which permits the tracing of the electrocardiogram and stethogram consecutively on the same instrument. Other Cambridge cardiac diagnostic instruments will also be shown. See page 86.

## CONSTANT SPEED CENTRIFUGE

The new Gyro constant speed centrifuge with uniform timing will be shown at Booth 200. In addition to demonstrations of the quiet dependable performance of this standard comparative instrument, the Electric Manufacturing Company will have on display the Gyro graduated molded Lucite tubes which are unbreakable, with no variation in weight or content.

## A STOMACH CAMERA

For the first time on the Pacific coast the Gastro Photo Camera for photographing the interior of the stomach will be shown by Gastro Photo Laboratories in Booth 128. A large number of stomach photographs normal and pathological obtained with this tiny camera will be on display, and competent men will be in attendance to give complete information regarding this ingenious instrument. See page 98.

## ELECTRICAL STETHOSCOPE

The Crosby Electric Company, national distributors of Western Electric scientific equipment, will feature instruments of interest to the medical profession such as the electrical stethoscope in Booth 130. The background of the booth will emphasize the nationwide service that Crosby renders. It will show a large map of the United States with each of the 80 cities where Crosby offices are located indicated by an electric bulb.

## JONES METABOLISM EQUIPMENT

The Jones Metabolism Equipment Company in Booth 128 will feature as their display the Jones Motor Basal, the Super Basal and the Automatic nitrogen determination metabolism equipment. A special feature of the metabolism equipment is that it contains no water and requires no calculation in the determination of the BMR. Another special feature of the dis-

play is the new method for determining the normal from the nitrogen metabolism. The Super Basal is an apparatus adjustable to the size of the patient. See page 87.

## MUSCLE TESTING

New methods in nerve and muscle testing will be featured in the exhibit of Lindquist diagnostic and therapeutic apparatus. Of particular interest to the neurologist and the physical therapist will be the demonstration of Chronovision, the newest method of electro diagnosis. The new direct-reading automatic Chronometer and the Chronovision low voltage generator will be featured. The manufacturer will be present to explain the operation of the new instruments. Booth 217.

## METABOLISM AND CARDIOGRAPHY

Three outstanding new developments in modern diagnostic apparatus will be shown at Simbion Company's booth No. 82. The new Simbion waterless metabolism tester companion to the famous water-sealed Model T-1-S will be exhibited. Both models will be on view. The latest Cardette achievement—automatic elimination of AC interference in heart records made by this portable electrocardiograph will be demonstrated. Developments in a new combination cardiograph-stethograph providing an electrocardiogram stethogram (heart sound record) and amplified heart sound for auscultation are also planned to be shown. See page 29.

## SEE THIS ANIMATED DISPLAY

The animated display of the Taylor Instrument Companies in Booth 49 will show how Tyco's blood pressure instruments operate. Also don't miss the mechanical hammer which proves the durability of the glass tube in the Tyco's mercurial manometer. The new flat glass Taylor Binoc fever thermometer will be displayed along with the Pavaux unit the famous glass boot for treating circulatory diseases of the extremities.

**CERTIFIED**  
**Tyco's**  
**INSTRUMENTS**  
—10-Year Guarantee

## BODY CAVITY INSTRUMENTS

At Booth 183 you can inspect the new Welch Allyn bronchoscopes, interesting developments in rectal instruments shown for the first time, and laryngoscopes representing important advances in construction. A complete line of dependable instruments for diagnosis in all body cavities will be presented.

## CLAPP'S CHOPPED FOODS

Huoh H. Clapp, Inc. will show their newly developed line of Chopped Foods for young children at Booth 129. The display will consist of 8 varieties of vegetables, soups and fruits which cover in

texture and providing more roughage than strained foods are a valuable contribution to the control of nutrition in early childhood. See page 61.

## WHY EAT BREAD?

In Booth 18, the department of nutrition of the American Institute of Baking will have a display showing why good bread is an economical and reliable source of abundant and easily digestible food energy. Scientific literature accepted by the Council on Foods of the American Medical Association describing the proper place of white bread in normal and reducing diets will also be available. See page 33.



## NEW NUCOA EXHIBIT

Doctors attending the convention who would like to learn more about New Nucco are cordially invited to visit the Best Foods booth (No. 191) and taste this wholesome spread for bread. An interesting series of photographs stressing the wholesome conditions under which New Nucco is manufactured will show how New Nucco is made. The exhibit will feature the recent addition of Vitamin A to the product. See page 110.

**New**  
**NUCOA**

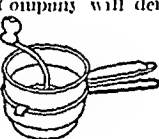
## BORDEN'S 81st YEAR

A warm welcome awaits all physicians at the Borden Booth No. 51. Representatives will gladly provide information on Borden products, notably Dryco, Special Dryco, Kalm Beta Lactose, Metcalf Soule Prescription Products, and Borden's Irradiated Evaporated Milk. See page 21.



## EASY WAY TO STRAIN FOODS

In Booth 208 the Foley Manufacturing Company will demonstrate how easily and quickly fresh cooked vegetables and fruits are mashed or strained with the Foley Food Mill made of steel, rust proof, acid proof and easy to clean. It will be shown in three sizes.



## HAVE A CUP OF SANKA COFFEE

At Booth 17 you will be served with a cup of delicious Sanka Coffee which is a choice blend of Central and South American coffees from which 97% of the caffeine has been removed. The new drip grind is as well as regular grind of Sanka will be on display together with other General Foods products of interest to physicians. See page 35.



## STRAINED FOODS FOR INFANTS

Cerber Products Company cordially invites you to visit Booth 89 and inspect their strained foods on display. Literature for professional use only and also some for distribution to mothers or adults will be available.

## DIETETIC PRODUCTS

## AMERICAN CAN EXHIBIT

All registrants at the Convention are cordially invited to call at Booths 52 and 53 where information will be available concerning those aspects of commercially canned foods which are of greatest interest to the medical profession. Literature on canned foods designed specifically for the physician's use will also be on display.

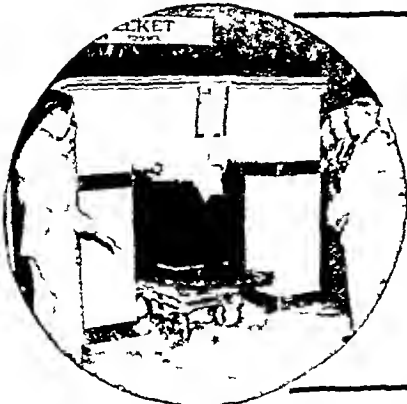
## CARNATION EXHIBIT

Some little-known factors in evaporated milk quality will be emphasized in the Carnation Company's exhibit Booths 13, 46. The display will show how the Carnation

experimental farms are developing high producing stock to improve the herds supplying its evaporating plants, and the work of Carnation field men in supervising raw-milk sources to insure a constant supply of clean fresh milk. The scientific processing of Irradiated Carnation Milk will also be illustrated. See page 72.

## LIST OF EXHIBITORS

Name	Booth No	Name	Booth No
Borden Co. The	J 54	Chia Pharm Products	J 12-13
Buck X Graph Co	179	Church & Dwight Co	102
Burdick Corp The	156-157	Chikold Surg Dress Co	221 A
Caleo Chemical Co	41	Collins Inc Warren F	127
Cambridge Instrument Co	F 119	Clapp Inc Harold H	107 A
Cameron Surg Spec Co	177-229	Coop Med Adv Bureau	160
Camp & Co S H	199-199 A	Cutter Laboratories	172
Carnation Co	4-46	Darles Loe & Co	113
Cash Inc J C J	146	Davis Co F A	49
Castex Laboratories	230	Davis & Cook Inc	111
Castle Co Wilmol	77	Day & Ideal Baby Shoe Co	21
Cavo Co	151	De Forest Laboratories	22
Chappel Bros Inc	20	DeJoy Mfg Co	
Chick Gilbert Hyde			



tients on therapeutic diets will be exhibited, and on request will be sent you later See page 97



**GOLDEN GATE MACARONI**

All of the fine semolina and egg noodle products of the Golden Gate Macaroni Company will be displayed at Booth 210. Especially featured will be fancy "Pasta" a new special fine grain type of macaroni product recommended by the firm for use in the diet of invalids and children.

**COOL PINEAPPLE JUICE**

Dole pineapple products from Hawaii will be represented at Booth 193. Here convention guests will be served a cool, soothing drink of pure unsweetened Dole Pineapple Juice. A colorful reminder of glamorous Hawaii itself will be featured, the display including a pictorial presentation of Hawaiian scenes plus a slide film showing the growth of pineapple and the picking of coned Hawaiian Pineapple and Pineapple Juice. See page 114.

**HEINZ STRAINED FOODS**

In order that you may see the natural fresh color and uniform consistency of Heinz Strained Foods, their display will present in an attractive manner all 12 varieties. A representative will be present to answer questions and a copy of the fifth edition of their Nutritional Chart will be sent to physicians who register at the exhibit in Booth 141. See page 113.



In prescribing the baby's diet from infancy to ten months National Dairy Council representatives will be on hand to answer questions and take registrations for copies of the booklet.

**A COMPLETELY MODIFIED MILK**

Similac, a completely modified milk for infants deprived of breast feeding will be displayed by M & R Dietetic Laboratories Inc. Booth 71. Qualified representatives will gladly explain the value of the zero curd tension of Similac as it applies to both normal and special feeding cases. See page 116.



**OIL PAINTING TO BE SHOWN**

Nestle's Milk Products Inc. in Booth 78 will exhibit an original oil painting as the main feature of their display. The painting represents a nursery scene and is the work of Stephen Csoka who executed the canvas especially for Nestle. See pages 94-95.

**EVAPORATED MILK PLANT**

An actual working model of a milk condensing plant in miniature every part constructed to scale will be exhibited in Booths 131 and 135. The exhibit will offer an opportunity to obtain information about the production of Irradiated Pet Milk and its uses in infant feeding and general dietary practice. Miniature Pet Milk cans will be given to each physician who visits the booth. See page 124.



**TRY A BANANA MILK SHAKE**

You are cordially invited to visit the United Fruit Company's Booth (No. 142) and sample a refreshing banana milk shake made before your very eyes from the fresh ripe fruit mixed with cold milk and a scoop of vanilla ice cream. Here also you will find the latest information developed by research on the food value and the varied uses of the banana.

**ORANGE GRAPEFRUIT BEVERAGE**

Blended Orange and Grapefruit Juice, a new and delicious addition to the Dr. Phillips line of coned citrus fruits and juices will be featured at Booth 57 with other products of the firm.

**STOKELY'S BABY FOODS**

The fourteen different items in the Stokely line of baby foods which are prepared by a special fine chopping process known as comminuting will be displayed at Booth 27. Stokely's Tomato Juice and Stokely's Grapefruit Juice will also be included in the exhibit.



**VEGEX FOR VITAMIN B**

At Booth 149 Vegex will be featured as a potent source of the B Vitamin Complex. Its extrinsic factor potency and results in anemia, new data in child and mother feeding and recent results in heart and diabetic and pellagra disorder studies will be shown including the control tests used in biological assay. The palatability and simple food uses of Vegex in child and adult diets will also be demonstrated. See page 109.

**MEDICAL BOOKS**

**MANY NEW MEDICAL WORKS**

D. Appleton-Century Company will exhibit their entire line of medical works in Booth 44. Their "Practitioners Library of Medicine and Surgery" will be exhibited complete in its 13 volumes, also the complete set of the new Postgraduate Surgery. The thirteenth revised edition of Osler's Principles and Practice of Medicine will be shown for the first time. The new Essentials of Pathology by Lawrence W. Smith and Edwin I. Gault and other recent works will be included.

**SHOWN FOR THE FIRST TIME**

Downey's Handbook of Hematology in 4 volumes of 3,200 pages will be shown for the first time at the booth of Paul B. Hoeber Inc. No. 107. The firm will also show the first copies of "The Culture of Organs" by Alexis Carrel and Charles A. Lindbergh. Lashers' Industrial Surgery, Sheehan's Reproductive Plastic Surgery, Corner's "Attaining Manhood," Parlier's Methods of Tissue Culture and other new and forthcoming publications. See pages 16 and 17.



medicine and surgery. Of particular interest are three new monographs which are nearing completion for the meeting but may not be released until late in June—"Symptomatology and Differential Diagnosis in Diseases of Children," by Sanford Blum, A.B., M.S., M.D., a handbook of "Roentgen and Radium Therapy," by A.J. Delario, B.S., M.D., and "Diseases of the Ear, Nose and Throat," by Francis L. Lederer, B.S., M.D. See pages 11 and 12.

**LEA & FEBIGER BOOKS**

At Booth 86 Lea & Febiger will exhibit the following new works: Brenner's "Pediatric Surgery," Pohle's "Theoretical Principles of Roentgen Therapy and Clinical Roentgen Therapy," Steel's "Biological and Clinical Chemistry," Craig & Faust's "Parasitology," Long & Goldberg's "Social Hygiene," Weinzirl's "Hygiene," Fishberg on "Heart Failure," Davidoff & Dyke's "Normal Encephalogram," Rows's "Clinical Allergy," Saxl's "Pediatric Dietetics" and Thorndike's "Athletic Injuries." Many new editions will also be shown. See pages 6 and 7.

**NEW LIPPINCOTT PUBLICATIONS**

Dr. Max Thorek's "Modern Surgical Technique" in 2 volumes containing over 2,000 illustrations will be shown for the first time at the Lippincott Booth (No. 100). Other new important publications to be on display are "Experience in the Management of Fractures and Dislocations" by Dr. Phillip Wilson and associates' present-

**LITERATURE FOR PHYSICIANS**  
Reports of clinical research on the use of Irradiated Evaporated Milk in infant feeding treatment of milk allergy and dietary management of peptic ulcer will be available at Booth 142, also free manuals of instruction giving formulas for milk mixtures and recipes for low cost family feeding. The new Sweeney and Buck monograph on "How to Feed Young Children in the Home" will be shown and you can easily arrange for complimentary copy.

**MOTION PICTURES TO BE SHOWN**

Mead Johnson & Company will feature some new sound on film motion pictures on pediatric subjects, also some new artistic interests at Booths 168, 169, 271, 272 and adjoining rooms. This will be the first exhibit on the Pacific coast of the Mead Johnson collection of ancient nursing bottles, pap bowls and feeding spoons which has increased greatly in scope and value since it was shown at the Philadelphia session in 1931. Among the new products will be Olac for the feeding of premature. See back cover.

**MELLIN'S FOOD EXHIBIT**

Physicians attending the Session are invited to visit the Mellin's Food Company's exhibit which will occupy Booth 87. Well informed representatives will be on hand to discuss the adjustment of feeding mixtures to meet the nutritive requirements of infants during their first year, and other problems.

**NEW INFANT FEEDING SCHEDULES**

At Booth 14 the National Dairy Council will present an exceptionally fine set of infant diet schedules using fresh milk for formulas for use exclusively by the physician.

**LIST OF EXHIBITORS**

Name	Alse	Booth No	Name	Alse	Booth No
DeWitt Co. The	Corr	182	Fischer & Co. H. G.	E	162
Dietograph Products Co.	C	239-240	Foley Mfg. Co.	D	208
Director of Exhibits	C	107 A	Foregger Co. Inc. The	K	4
Dole's Laboratories Inc.	F	167	Fougera & Co. E.	E	147-148
Drug Products Co. The	F	127	Fraser Faybor Co.	Corr	213
Duke Laboratories Inc.	I	83	Castro Photo Laboratories	F	128
Dupont Film Mfg. Co.	B	258-259	General Electric Co.	L	24
E. & J. Company of N. Y.	A	262	General Elec. X-Ray Corp.	L	6-7-8-9
Farnshaw Knitting Co.	C	237	General Foods	I	17
Eastman Kodak Co.	F	137-138-139	General Mills Inc.	D	198
Electric Mfg. Co. The	D	200	Gerber Products Co.	H	89
Electro Therapy Prods.	Corp D	191	Gevaert Co. of America	A	261
Emerson Co. J. H.	B	260	Golden Gate Macaroni Inc.	D	210
Fischer Corp. The	C	110	Gomco Surg. Mfg. Corp.	E	143



ing details of over 1000 cases 'Outline of Roentgen Diagnosis' by Dr. Leo G. Rigler in outline form with 227 illustrations 'New International Clinics' edited by Dr. George Morris Piersol, and 'Diseases of the Blood and Atlas of Hematology' by Dr. Roy R. Hraekle See page 12

#### MAGMILLAN MEDICAL WORKS

The Macmillan Company extends a cordial invitation to visit its exhibit of new and outstanding books at Booth 23. Among recent publications to be displayed are the following: 'Leukemia and Allied Disorders', Jones; 'Digestive Tract Pathology', Kurtz; 'Orthopedic Cases', Holman; 'Arteriosclerosis, Aneurysm', Nelson-Criss; 'Syphilis, Gonorrhea and the Public Health', Strecker-Chambers; 'Alcohol', One Man's Meat; 'Man's Developmental Abnormalities of the Eye', and 'Guedel's Intubation Anesthesia'. See pages 18 and 19.



#### EXHIBIT OF MOSBY COMPANY

Among the many new books to be exhibited by the C. V. Mosby Company at Booth 93 are: 'Jensen's The Heart in Pregnancy', the 5th edition of Porter and Carter's 'Management of the Sick Infant and Child', Pottenger's 'Symptoms of Visceral Disease', Pruitt's 'Hemorrhoids', Watson's 'Hernia', Rea's 'Neuro-Ophthalmology', the 5th edition of Crossen's 'Operative Gynecology', and the 6th edition of Glendening's 'Methods of Treatment'. Approximately 100 other volumes will complete the exhibit. See pages 8, 9, 10 and 11.

#### LOOSE LEAF MEDICAL BOOKS

Thomas Nelson & Sons invite you to visit their exhibit in Booth 43. The Nelson Loose-Leaf Medicine, 'Loose-Leaf Surgery', 'Loose-Leaf Diagnostic Roentgenology' (many volumes in one) and the new semi-annual replacement pages showing the latest advances in medicine and surgery, will be on display.



#### FROM THE OXFORD PRESS

In Booth 51 Oxford University Press will have on display an extensive line of medical books including 'Management of the Pneumonia' by Dr. J. G. V. Bullock, 'Radiation Therapy' by Dr. I. I. Kaplan and the standard work 'Applied Physiology' by Dr. Samson Wright 6th edition together with 'Oxford Loose Leaf Medicine'. See page 20.

#### 'LOOSE LEAF MEDICAL BOOKS

In Booth 171 W. I. Prior Company will show their full line of loose-leaf medical works, including 'Ties', 'Practice of Medicine', 'Lewis', 'Practice of Surgery', 'Moore', 'Pemberton and Coulter's Principles and Practice of Physical Therapy', 'Davis', 'Gynecology and Obstetrics' and 'Practice of Pediatrics' by Brenneman. A vast sum of money has been spent during the past year to keep all of the Prior works abreast with medical advances and representatives will be glad to tell all visitors about the advantages of the loose leaf service. See pages 22 and 23.

#### OUTSTANDING SAUNDERS BOOKS

W. B. Saunders Company will exhibit at Booths 84 and 85 a complete line of books for the medical, dental, nursing and allied professions. Included will be a brand new edition of Beckman's 'Treatment Guide', 'Practical Proctology', Hermann's new 'Urology', new edition of Cecil's 'Medicine', Gifford's 'Ophthalmology', Padgett's 'Surgical Diseases of the Mouth and Jaws', Merrill and Fremont-Smith on the 'Cerebrospinal Fluid', the new (1938) 'Naso Clinic Volume', Waprud's 'Business Side of Medical Practice', Bastedo's 'Vitalia Medica' and many others. See pages 3, 4 and 5.

#### SIX UNIVERSITY PRESSES EXHIBIT

New books in medicine and surgery from six University Presses will be shown in a joint exhibit. The Presses cooperating in the display are Yale University Press, University of Pennsylvania Press, University of Illinois Press, University of Minnesota Press, Columbia University Press, and the University of Chicago Press. A representative of the University of Chicago Press will be in charge of the exhibit. Booth 126.

#### ADVANCE COPIES OF NEW BOOKS

At Booth 1 William Wood & Company will show advance copies of important books including Portmann's 'Operative Otolaryngology', Cabot and Adams' 'Physical Diagnosis', Appleton and Tanageroff's 'Surface and Radiological Anatomy', Feldman's 'Clinical Roentgenology of the Digestive Tract', Friedenwald's 'Secondary Gastrointestinal Disorders', Henderson's 'Adventures in Respiration', Bierman's 'Medical Applications of Short Wave Wavelengths', 'Chronic Intestinal Toxemia' and many standard works. See pages 20 and 21.



#### A. M. A. PUBLICATIONS

A. M. A. periodicals, pamphlets and reports as well as the American Medical Directory, Index Medicus and other books will be found in Booth 107A. Also in Booth 208 there will be a miniature stage production which, by means of animated figures, shows the value of Hygeia, the Health Magazine, to the physician and his patients.

### MISCELLANEOUS

#### A "DIFFERENT KIND OF EXHIBIT"

A distinctive type of exhibit will be that of the American Seating Company. Booths 176 and 178. As an aid to the medical profession in influencing the present widespread movement toward modernizing school equipment, because of its importance as a factor in public health, the firm will present models and graphs showing just how seats affect the visual and general welfare of children. Doctors will be interested in the thorough going research which underlies this presentation. See page 62.

#### AZNOE'S EMPLOYMENT SERVICE

An experienced representative of Aznoe's National Physicians Exchange will be on hand in Booth 70 to offer the services of this organization to medical men and hospital executives who are considering additions or changes in office or hospital personnel. Available appointments include phy-

sicians, nurses, dietitians, technicians or other medical assistants. This service is free to employers. Persons seeking an appointment or contemplating a change in employment are also invited to call.

#### MOTION PICTURE EQUIPMENT

Beil & Howell will exhibit and demonstrate various types of 16 mm movie cameras, projectors and accessories. New models in cameras will include the 701 semi-professional with 300 magazine motor drive and single frame exposure device. A new projector will be the 138-J two-case 16 mm sound with booster amplifier giving 15 watts output. Also a new free booklet on medical movie making will be available. Booth 16.



#### WOVEN NAME TAPES

Visitors at Booth 116, of J & J Cash Inc., manufacturers of woven name tapes and insignia for hospital identification marking, will have the opportunity of seeing the model of a loom which makes the articles. Also featured will be a special style of woven name tape known as D-51 used by superintendents of nurses, dietitians and nurses on the pocket of their aprons or uniforms. See page 119.

#### AT THE EASTMAN KODAK BOOTHS

The Eastman Kodak Company will feature a collection of interesting clinical radiographs in Booths 177, 178 and 179. Shown also will be both medical and pleural motion pictures in full color made with Kodachrome. Also there will be a large display of clinical subjects in both black and white and natural color in the form of transparencies and prints, the latter also in color, employing the Wash Off Relief process. Technical representatives will be in attendance to answer any questions. See insert between pages 62 and 63.

#### WILL SHOW RUBBERIZED MATERIALS

Water and dust proof lightweight rubberized sheetings and garments for office, hospital and home use will be demonstrated at Booth 211 by the Holland-Rantos Company Inc. Rantoslik, a rubberized, colored silk, Hollindex, a rubber-calendered lawn and Rantogrip, a non-slip sheeting will be included in the exhibit. All physicians are invited to call.

#### BABY TRAINING BOOKS

A newly revised edition of 'Franchise the Baby' will be offered free to physicians in limited quantities. In Booth 60 where Little Folks and other toilet training needs, sores will be shown. New interesting photographs will also be available. An illustrative mural of Comfy-Safe Autoseat, the only item outside of toilet training, aids made by Juvenile Wood Products Inc. will be featured in the exhibit.



#### IF YOU HAVE A HOBBY

The monthly magazine, 'Associations de', devoted to collectors of books and autographs, prints and drawings, antiques and glass stamps and coins and photography and travel as they relate to these hobbies, has been selected as the official organ of the American Physicians Art Association and will be on display at their booth No. 261. The June issue which will be featured will reproduce the works of over

### LIST OF EXHIBITORS

Name	Ask	Booth No	Name	Ask	Booth No
Graybar Electric Co	Y	130	International Vitamin Corp	B	252
Hamilton Mfg Co	K	31-32-33	Irradiated Soap Mfg Inst	F	152
Hanovia Chem & Mfg Co	D	203-204	Johnson & Johnson	F	108
Hawallan Pineapple Co	D	193	Jones Metalbolsm Equip Co	F	231
Heldbrink Co. The	Corr	180	Jones Metal Products Co	F	231
H J Heloz Co	F	141	Juvenile Wood Products	J	60
Hilker & Blutsch Co	C	227	Kelley Bott Mfg Co	F	221-223-224
Hoerber Inc. Paul B	G	107	Keystone View Co	B	241
Hoffmann La Roche Inc	J	66	Kitchen Hatch M Corp	C	241
Holland Rantos Co. Inc	C	233	Lakeside Laboratories	C	101
Hospital Liquids Inc	D	192	Lea & Febiger	H	113-114
Hygeia	A	268	Ledric Laboratories	C	233-235
Hygson Wescott & Dunning	H	90	Lewis Mfg Co	F	145
Illie Electric Corp	B	220	Leitz Inc	F	225-226
			Leibel Flarsheim Co. The	C	





100 physicians whose paintings sculpture etchings photographs and other works of art will be on display at the Convention

#### MODERN RECORD SYSTEMS

The McCaskey Register Company in Booth 40 will gladly explain to physicians their 'One Writing' record system and show how it offers a convenience and savings on account of the ready visibility and accessibility of individual records. Here is an opportunity to pick up valuable information on efficient management of medical practice. See page 92.

#### MEDICAL BUREAU FACILITIES

In Booth 88 an experienced representative will offer the facilities of the Medical Bureau an organization which acts as counselor in problems of medical personnel to physicians hospital administrators clinic managers and executives in the medical field. The records of physicians who have specialized in the various branches of medicine as well as the records of hospital executives graduate nurses technicians social workers and dietitians will be available to those interested in the completion or reorganization of their staffs. See page 67.

#### PROFESSIONAL PROTECTION

The Medical Protective Company invites you to visit Booth 184. The representative who will be in charge is thoroughly trained in professional liability underwriting and is entirely familiar with the principles of the reciprocal rights and duties of a doctor and patient and with the circumstances peculiar to that relationship. He will be glad to explain how his Company meets the exacting requirements of adequate liability protection which are peculiar to the professional liability field.

#### CALL AT PHILIP MORRIS BOOTH

Philip Morris & Co. Ltd. Inc. in a new exhibit Booth 117 will demonstrate the method by which it was found that Philip Morris cigarettes in which diethylene glycol is used as the hygroscopic agent are less irritating than other cigarettes. Their representative will be happy to discuss researches and problems on the physiological effects of smoking. See page 117.

#### NORTHWESTERN MUTUAL LIFE

The medical department of the Northwestern Mutual Life Insurance Company will be represented at Booth 15 adjacent to one entrance of the scientific exhibit. Northwestern examiners and others who may be interested are cordially invited to visit the booth and meet personally one of the representatives from the home office medical department.

#### ADVANTAGES OF TAMPAX PRESENTED

Realizing the fact that many physicians are called upon by woman patients to answer questions regarding the different methods of sanitary protection during the menstrual period Tampax Inc. will have an attractive disguised exhibit in Booths 188 and 189 where representatives will be glad to discuss all such problems with visitors. See page 91.

#### FULL INFORMATION ABOUT 'WIX'

At Booth 212 the Wix Company will give physicians an opportunity to secure full information about Wix trumpets. If you have occasion to recommend or answer

questions concerning this newer method of sanitary protection you will want to call and secure the facts concerning Wix. See page 88.

#### "RADIO NURSE" DEMONSTRATION

An opportunity to see and hear that ingenious new development of science known as the 'Radio Nurse' will be afforded by a visit to the Zenith Radio Corporation Booth 181. The device consists of two small units the 'Guardian Ear' supersensitive to the slightest sound, to be plugged into an electric outlet in the nursery or sickroom and the 'Radio Nurse' proper, which is plugged in wherever the mother happens to be thereby conveying to her the slightest sound—a cry, a cough or even the sound of breathing.



### OFFICE FURNITURE

#### NEW LINE OF WOODEN FURNITURE

Physicians will want to take a few minutes to investigate what is new in office equipment. An entirely new line of physicians' wooden furniture with an abundance of improved time-saving features, will be found on display at Booths 55 and 56. In addition the Allison Company will have on display the popular Hanes table. See page 110.



#### NEW FURNITURE FOR THE OFFICE

If you have a feeling that your office needs modernization and the installation of new style furniture it will pay you to stop at the exhibit of the Hamilton Manufacturing Company Booths 31, 32 and 33. They show a wide range of styles in modern as well as conservative designs and representatives will be glad to render assistance in your office planning. See page 119.

#### THE EAR NOSE & THROAT OFFICE

A sample treatment room will be shown by Surgical Mechanical Research in Booth 242. Physicians are invited to visit the display and look it over with such questions as the following in mind: Does it meet my particular needs? 'Will it always look neat and clean?' Can I reach everything with a minimum of effort? (Can I make a complete examination without moving the patient? What will be the reaction of the patient?

### OPTICAL INSTRUMENTS

#### DIAGNOSTIC INSTRUMENTS

American Optical Company will display its varied line of professional diagnostic instruments such as the ophthalmoscope otoscope retinoscope transilluminators diagnostic sets and other ophthalmic instruments and equipment in Booths 201, 201-A and 206. In addition it will feature the Ophthalmic O-Graph a portable binocular eye movement camera which yields a

visible objective and practical record of the functional efficiency of the reading eyes also the Metron-O Scope, which is a triple shutter short exposure device for orthoptics applied to controlled reading.

#### NEW CLINICAL MICROTOME

A feature of Bausch & Lomb's exhibit Booths 202 and 232 will be the new clinical microtome for rapid, accurate sectioning of frozen celloidin and paraffin material. A Duboseq biological colorimeter with a new direct reading scale will be shown also various models of Bausch & Lomb's medical research and laboratory microscopes with accessories. Haemacytometers hemoglobinometers slit lamps, the binocular ophthalmoscope, and the stereo camera will be included. See page 115.



#### THE BIO PHOTOMETER

The physician who has heard of the Bio Photometer for the clinical determination of the vitamin A status of the patient and has desired to obtain first hand information concerning its operation will have an opportunity of so doing at Booth 213. Three different models in which the Bio-Photometer is now available will be shown at an interesting price range, and you are cordially invited to inspect all models at this Prober-Faybor exhibit. See page 78.

#### KEYSTONE VIEW COMPANY

Keystone View Company will present for the first time the Keystone Tests of Binocular Skill an adaption to the Telebinocular of the Oral Reading Check Tests by William S. Gray. Another 1938 product to be shown is a unit of reading slides in three levels of difficulty especially adapted to all orthoptic exercises requiring sharp fixation. The Synoptoscope and the Keystone series of transparencies for use in Synoptoscope, synoptophore and Orthoptoscope with a manual and some new techniques with the Telebinocular and Tel Eye-trainer will also be shown. Booth 201.

#### NEW QUEBEC COLONY COUNTER

The Spencer Lens exhibit will feature medical microscopes equipped for bright field and dark field work also for blood counting with the Bright-Line Haemacytometer. Several types of Spencer microtomes will be set up for demonstration. Delcamscopes for the projection of lantern slides filmstrips or opaque materials—instruments for the lecture hall—will be exhibited. The Quebec Colony Counter, a new bacteria viewing device will be shown to Convention visitors for the first time. Booth 228.

#### ZEISS EXHIBIT

Carl Zeiss Inc. will exhibit at Booths 154 and 155 a collection of Carl Zeiss-Jena instruments such as microscopes microprojector apparatus refractometers ophthalmological instruments contact lenses etc. as well as Zeiss-Ikon cameras, including the Contax. Special attention will be directed to the Wolf-Schindler Flexible Gastroscope and to a new model of the Zeiss Nordenson Retinal Camera. See page 67.



### LIST OF EXHIBITORS

Name	Aisle	Booth No	Name	Aisle	Booth No
Lilly and Co. Fil	J	61-62-63-64	Mead Johnson & Co. (C H A B C)		168-169-271
Linde Air Prod Co. The	I	81			272 and
Lindquist H J		217			Adj Rooms
Lippincott Co. J B	C	100	Medical Bureau	H	88
Luzier & Inc		25-26	Medical Protective Co	Corr	184
M & R Diet Lab Inc	J	71	Mellin's Food Co	H	87
Metform Instrument Co	Corr	173	Mennen Co	F	136
Michael Laboratories Inc	B	243-244	Merek & Co. Inc	L	10-11
Macmillan Co. The	L	23	Merrell Co. Wm S	I	59
Milnekradt Chem Wks	K	42	Mosby Co. C V	I	93
Moline Co	F	30	Mueller & Co. V	I	72-73
Morille Non All Cosmetics	F	144	National Carbon Co. Inc	I	81
Mattern F. Mfg Co	Corr	211	National Dairy Council	L	14
McCaskey Register Co	K	40	Nelson & Sons Thomas	K	43
McKeon Appliance Co	H	207	Nestle's Milk Prod Co	I	78
McKesson & Robbins Inc	B	245	Northwestern Mut Life Ins Co L		15



# PHARMACEUTICALS and BIOLOGICALS

## NEW 'COUNCIL ACCEPTED' PRODUCTS

A feature at the exhibit of Abbott Laboratories in Booths 103 and 104 will be a section displaying more than 35 of their products which have been accepted by the Council on Pharmacy and Chemistry since January 1 1938. Other popular items selected from their long list of Accepted specialties also will be shown. You will be most cordially welcomed by the well trained corps of Abbott representatives who will be glad to discuss these products with you. See pages 30 and 31.

## ARLINGTON CHEMICAL EXHIBIT

Physicians desiring to discuss their allergic problems will find cordial cooperation from the representatives in charge of the Arlington Chemical Company exhibit Booth 153. A new diagnostic protein outfit containing 80 units, which was first announced in the March 26 1938 Journal of the A. M. A. will be especially featured, as well as the smaller diagnostic protein outfits which are made up for individual patients in any area. See page 42.

## WILL FEATURE ORGANO-THERAPEUTICS

New products and processes illustrative of the progress and technique in the manufacture of organo-therapeutics will be featured at the Armour Booths 166 and 190. Improvements in packaging and standardization of accepted products as well as many new items, will be exhibited. New dermat and ophthalmic Nu-Grip sutures will also be shown, and practitioners interested in recent developments in hormone therapy and other problems in endocrinology may discuss such matters with the head of the chemical research department. See page 39.

## INTRAVENOUS SOLUTIONS

Baxter's line of Intravenous Saline and Dextrose solutions in Vacollers the vacuum sealed container dispensers will be displayed in Booth 2. Also the Baxter suction siphon, for effective cavity drainage will be shown, as will the Baxter blood transfusion set and 'Blood Bank' assembly.

## BILHUBER KNOLL MEDICINALS

Metrazol a restorative in barbiturate or opiate poisoning surgical shock and asphyxia Dilaudid hydrochloride for pain relief and cough sedation Theocaine for diuretic and myocardial stimulation. These and the other well known medicinal chemicals of Bilhuber-Knoll-Euresco Lengalloy and Bromural can be discussed at Booth 96. Helpful prescription data on these products will be available.

## SPECIALTIES BY CALCO

Urginin a cardiac drug useful in auricular fibrillation cardiac arrhythmias decompensation myocardial insufficiencies and cardiovascular renal disorders will be featured at Booth 41 by Calco Chemical Company Inc. also Trichlorethylene-Calco useful in the treatment of painful conditions about the free Crystal Violet Jeth-Calco valuable in the treatment of burns and other Calco specialties including Aminoacetic Acid (Glycine Glycocol) Calco Tetraethoxyethylene-Calco, Medicinal Dyes.

## ANTI-ANEMIC PREPARATIONS

Chappel Laboratories extend an invitation to all members of the medical profession to visit their technical exhibit of Council Accepted anti-anemic preparations including Chappel Liver Extract, Concentrated, Intramuscular, and Chappel Liver Extract Subcutaneous which will be featured as outstanding developments in the potency and purification of Liver Extracts. Booth 151.

## SODIUM BICARBONATE U. S. P.



Church & Dwight Co. Inc. invites you to visit Booth 102. Here in a newly designed and very modern exhibit will be shown those dependable old products Arm & Hammer and Cow Brand Bicarbonate of Soda which have stood the acid test of time since 1846 and meet all the requirements of the U. S. P. X. Competent representatives will be in charge. See page 71.

## CIBA PHARMACEUTICAL PRODUCTS

Physicians are cordially invited to visit the Ciba Booths 12 and 13, where they will find exhibits of well known Ciba specialties, among which are Digifoline Dial Nupercaine Lipodolone and Vioform. Uses for these products will be described by the assistant medical director and the representatives of the firm who will be glad to discuss any questions the doctor may have. See page 64.

## SHOWN BY CUTTER LABORATORIES

Cutter Laboratories, in Booth 105 will feature their Council Accepted biologicals and allied intravenous specialties Dextrose solutions in Safitasks with the various mechanical improvements and modifications developed within the past year will be demonstrated by competent representatives. Of particular interest to visiting physicians will be their display of tiny fever treatment sets together with the demonstration of the Cutter antitoxin syringe. See page 62.

## VISIT DAVIES ROSE EXHIBIT

When rambling among the scientific and commercial exhibits you will find it pleasant and profitable to visit the Davies Rose & Company booth 172. Here there will be on display preparations of particular interest to cardiologists and neurologists with well informed representatives to explain them and discuss some of the new therapies with you.

## PULVOIDS—HYPOISOOLS

One of the many interesting exhibits this year will be at Booth 127, the display of The Drug Products Co. Inc. where representatives will be on hand to explain the extreme care taken in the manufacture of the company's Hypoisoils (amputees) and Pulvoids. The Hypoisoils exhibit will stress the fact that these amputees measure up to rigid U. S. P. and N. F. requirements. Physicians are invited to spend a few moments at this informative booth. See page 76.

## RECENT 'ROCHE' CONTRIBUTIONS

Hoffman-La Roche will be at Booth 66 where Syntropan Alurate Larocaine and other recently introduced 'Roche' contributions to modern materia medica will be featured and where members of the Nutley staff may be contacted.

## LIPIODOL FOR RADIOLOGY

The exhibit of E. Fongera & Company occupying booths 147 and 148 will feature the distinctive contrast medium Lipiodol Lafay. Up to date literature and reports will be available for the visiting physician. See page 46.

## VITAMIN D PRODUCTS DISPLAY

An informative display featuring Vitamin D in the form of Vitolster (A. R. P. Process) in Oil for the pharmaceutical trade and Vitamin D incorporated in evaporated milk for the fluid milk dealers, awaits physicians visiting this booth. The story of what the product Embo (Wheat Embryo) can accomplish in cases of Vitamin B deficiency also will be told. Nationally known products of the parent company, General Mills Inc. will be an interesting part of the exhibit. Booth 198.

## CALL FOR THIS BOOKLET

Intravenous solutions in Liltrair dispensers will be exhibited at the Hospital Liquids, Inc. display Booth 192. Physicians will find interesting the manner in which solutions are kept pyrogen protected and how they can be depended upon for sterility, security and safety in administration. Copies of an authoritative informative booklet 'Parenteral Administration of Fluids' will be on hand for free distribution. See page 89.



## MERCUROCHROME EXHIBIT

Hynson Westcott & Dunning Inc. will have an exhibit featuring Mercurochrome and various pharmaceutical specialties of their manufacture. There will also be a display of some of the diagnostic apparatus and ampule solutions which have been developed in cooperation with physicians. Competent representatives of the company will be in attendance to demonstrate the products and to answer questions. Literature and samples will be available to physicians. Booth 90.

## AMPOULE PREPARATIONS

Their 'Council Accepted' Ampoule preparations, particularly their ampoules of Dextrose (d Glucose) 50%, Sodium Lactate, Calcium Chloride and Mercury Succinate will be exhibited by Lake Side Laboratories, Inc. in Booth 101. Members of the research staff will be present to demonstrate the chemical bacteriological and physiological methods used to insure their purity, sterility and safety. See page 26.



## HOUSE OF VITAMINS

Complete information on all matters pertaining to vitamins will be available for physicians at the International Vitamin Corporation Booth 252. Included will be a showing of the following 'Council Accepted' vitamin products: Inthibit Liver Oil Platin Liquid and Capsule form.

## LIST OF EXHIBITORS

Name	Alste	Booth No	Name	Alste	Booth No
Oxford Univ Press	K	51	Iose Mfg Co E J	D	191
Parke Davis & Co	H	91-92	S M A Corp	Corr	185
Patterson Sereca Co	F	131	Sanborn Co	I	82
Pettico & Crane Co	B	257	Sandoz Chemical Works	J	67
Pet Milk Co	F	134-135	Saunders Co W B	I	24-25
Petrolagar Labs Inc	J B	58-255	Scanlan Morris Co	I	276
Philip Morris & Co	F	117	Scherling Corp	I	112
Phillips Metallic Corp	F	132-133	Searle & Co C D	J	85
Phillips Co Dr I	J	57	Selby Shoe Co	I	222
Prior Co W F	Corr	171	Sharp & Dohme	I	79-80
Prometheus Elec Corp	E	150	Siebrandt Mfg Co J B	I	270
Remington Rand Inc and	E	Mezzanine	Sight Light Corp	Corr	214
Rare Chemicals Inc	K	3	Sklar Mfg Co J	I	5
Pied de Haen Inc	K	34	Smith & New Inc	Corr	2
			Sonotone Corp	Corr	215



**Halibut Liver Oil with Vitamin D Concentrate in Liquid and Capsule form** Cod Liver Oil Concentrate in Liquid and Capsules Cod Liver Oil Vitamin Concentrate in Tablets and Viosterol (A R P I Process) in Oil See page 47

#### FOUR SECTIONAL LEDERLE DISPLAY

The progress and value of modern therapy in the treatment of pernicious anemia, pneumonia and scarlet fever are described in color animation graphs and photo-murals in the new four-sectional Lederle display which will occupy spaces 113 and 114.



114 Descriptive technical information as well as the Lederle products on liver therapy, pneumonia typing and pneumonia sera, and treatment and the use of scarlet fever antitoxin for prophylaxis and therapy will be attractively shown See page 39

#### DEMONSTRATIONS BY LILLY

In a continuous demonstration Eli Lilly and Company will carry out a method of standardizing oxytocic drugs upon isolated uterine muscle. Especially designed and lighted apparatus will enable the observer to follow the extent and duration of muscle contraction. The display occupying Booths 61 to 64 inclusive will also present new and interesting panels dealing with liver products: Iletin (Insulin Lilly), Protamine Zinc & Iletin (Insulin Lilly), Metacaine (Gammair-(2 methyl-piperidine) propyl Benzoyl Hydrochloride Lilly), Ephedrine, and Carbarone. See page 58

#### MALLINCKRODT CHEMICALS

Physicians and their friends will be welcomed at the Mallinckrodt Chemicals World's booth No. 12 where will be exhibited specialties as well as a long line of U.S.P. and N.F. preparations. The central theme will be the English and Latin labeled bottle which recalls the pharmacy of earlier days and which is a step toward raising pharmacy to a higher place in professional esteem. Along with well known prescription items will be shown analytical reagents used in pathology and chemicals used by the various departments in routine hospital procedure. See page 51

#### COD LIVER OIL RESEARCH

The Maltine Company will demonstrate in Booth 30 the various steps involved in the manufacture of Maltine with Cod Liver Oil and will show illuminated slides of interest to physicians including photomicrographs indicating the minuteness and uniformity of the oil globules in Maltine with Cod Liver Oil

#### HALIBUT VITAMIN PRODUCTS

McKesson & Robbins Inc. will display in Booth 245 a series of halibut liver oil products accompanied by an exhibit which will indicate the effects and use of vitamins A and D in the treatment of conditions arising from a deficiency of either or both of these vitamins



#### LINDE AIR PRODUCTS TO EXHIBIT

The Linde Air Products Company in conjunction with National Carbon Company Inc. another unit of Union Carbide and Carbon Corporation will occupy Booth

81. The exhibit will feature the use of oxygen for therapeutic purposes and the installation of piping systems for more economical distribution of oxygen. Illustrations will show various methods of administering oxygen therapy and oxygen therapy apparatus will be on display

#### VITAMIN B<sub>1</sub> HYDROCHLORIDE

Merck & Co. Inc. manufacturers of vitamin B<sub>1</sub> HCl are presenting an exhibit in Booths 10 and 11 devoted to the synthesis, the requirements for and the therapeutic uses of this product. The synthesis of crystalline vitamin B<sub>1</sub> HCl was followed by its successful production on a commercial scale. With adequate quantities available extensive clinical studies were made possible. All physicians attending this convention are cordially invited to visit this exhibit. See page 32

#### TO SHOW COLORFUL DIORAMAS

Only a five minute visit at Booth 59 is necessary to view an interesting series of colorful dioramas depicting a variety of subjects and scenes from several parts of the world—cod fishing off Norway, shipping eastward from inland Brazil and birch-brush harvesting in the New England hills. Two contrasting scenes—one showing the typical mid-west apothecary of the early nineteenth century and the other a section of a present-day research laboratory—help to illustrate the great progress of pharmacy during the past century. See pages 28 and 38

#### PARKE DAVIS EXHIBIT

A number of scientific accomplishments will be displayed by Parke Davis & Company's staff of expert technical men in charge of Booths 91 and 92. Products of special interest to the medical profession will be shown including Mophorsen (an advance in antispasmodic therapy), glandular products (Theelin, Adrenalin and the Pituitrin group) also Meningococcus Antitoxin and other biological products

#### GET YOUR COPY OF 'HABIT TIME'

Doctors who visit Booths 58 and 255 will be interested in the new and revised edition of Petrologar's Habit Time booklet which has just come off the press. In addition to a wealth of information on the subject of constipation, Habit Time contains a number of splendid anatomical drawings by the celebrated Tom Jones. There will also be available a few sets of the Nineteenth Century Types engravures of famous men of science lithographed and mounted for framing. These will be supplied to physicians as long as the limited supply lasts. See pages 36 and 37

#### FOR BILIARY TRACT DISORDERS

At Booth 34 Riedel-de Haen Inc. will display the advantage of prescribing chemically pure bile acids and their sodium salts in the treatment of hepatic and biliary tract disease. Well informed representatives will gladly furnish any information regarding Dechohn and Dechohn sodium. Also on display will be Penoston, a safe and dependable hypnotic. See page 44



#### SHOWN FOR THE FIRST TIME

At the Rare Chemical Booth No. 3 the following preparations will be featured: Gitalin (Amorphous), a rapid dependable glucosidal fraction of digitalis purpurea, which while as economical and effective as most whole leaf preparations, possesses a

more uniform rate of elimination, Salysal "Rare Chemicals," the salicylic ester of salicylic acid which provides improved salicylate therapy because local gastric irritation is reduced to a minimum and a smaller dosage is necessary, and Optochin Hydrochloride ethylhydrocupreine, a specific for pneumococcal infections of the eye

#### SANDOZ PHARMACEUTICALS

Sandoz Chemical Works will show their 'Council Accepted' specialties in Booth 67. Products to be featured are Gynergen



widely prescribed for the dramatic relief of migraine sufferers and for uterine hemostasis, the gluconate preparations of calcium (Calciglucon) for oral intramuscular and intravenous calcium therapy, 'Seillaren' and Seillaren-B time-tested cardiotonics, Sandoptal, isobutylallyl derivative of barbitaluric acid

#### SCHERING EXHIBIT

Schering Corporation will have a new of attractive exhibit in Booth 112. Members of the medical profession are cordially invited to call. Here will be an opportunity for personal discussion with representatives of the medical division and research laboratories concerning latest therapeutic developments. See page 36

#### SEARLE PREPARATIONS

Valuable contributions to modern therapy will be displayed by the research laboratories of E. D. Searle & Company. Every physician is invited to call at Booth 65, where such products as Aminophyllin (Searle) and Aqueous Bismuth Sodium Tartrate will be shown. Capable representatives of the medical service department will be on hand to welcome you and furnish any desired information



#### STRIKING SHARP & DOHME DISPLAY

Sharp & Dohme will have a new display at Booths 79 and 80. A number of items will be interestingly featured including digitalis capsules, Propadrine Hydrochloride products and Protamine Zinc Insulin. Included will be a continuous showing of moving pictures on Antivenin and Protamine Zinc Insulin. Competent well-informed representatives will be on hand to welcome physicians and to furnish information on Sharp & Dohme products. See page 33



#### NUTRITIONAL SPECIALTIES

Smaco Nicotinic Acid (3 Pyridine Carboxylic Acid), the factor of the Vitamin B complex now being used for clinical research in connection with pellagra will be displayed by S.M.A. Corporation in Booth 186. Other nutritional specialties exhibited will be Smaco Carotene (Provitamin A) in capsule liquid form plain and combined with vitamin D-concentrate, Hypo-Allergic Milk, Alerdex, the Protein Free Maltose and Dextrins, Protein S.M.A. (Acidulated) and S.M.A. the nutritive, antispasmodic breast milk adaptation. See third cover



(Continued on advertising page 78)

## LIST OF EXHIBITORS

Name	Alse	Booth No	Name	Alse	Booth No
Spencer Corset Co. Inc.	F	123	Univ. Presses Books of	F	126
Spencer Lens Co.	C	228	Vitamin Food Co. (Vegey)	E	149
Quibb & Sons E. R.	I	74-75-76	Vichy Celestins	B	250
Stacey Inc. J. W.	Corr	170-174	Walk Over Shoe Co.	F	121
Standard X-Ray Co.	D	196-197	Welch Allyn Co.	Corr	183
Stearns & Co. Fred	D	106	Westinghouse X-Ray Co.	E	158-159-160-161
Stokely Bros. & Co.	C	27	White Labs. Inc.	F	94
Storz Instrument Co.	L	28	Withrop Chem. Co.	F	122
Surge Medical Research	B	242	Wise Alumol Res. Found.	E	163-164
Sweetland Ernest J.	L	19	Wit Co.	Corr	212
T. Max Incorporated	D	188-189	Wood & Co. Wm.	I	1
Taylor Instr. Co.	K	49	Wright & Co. E. T.	C	109
Thomas Charles C.	K	29	Wyeth & Bro. John	F	124-125
Tower Company Inc.	L	21	Zelss Inc. Carl	I	154-155
United Fruit Company	F	142	Zenith Radio Corp.	Corr	181



# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 7, 1938

## THE SAN FRANCISCO SESSION

It is fifteen years since the American Medical Association last held an annual session in San Francisco. At that time the membership of the Association was 88,519, today it is 109,435, the largest number ever recorded in the history of the organization. Hygiene had just been established and is now celebrating its fifteenth anniversary, with a circulation well over 100,000. A few of the state medical societies had begun efforts for postgraduate education of their members, today we publish, week by week, records of the extension of this work to practically every state in the union. Fifteen years ago the American Medical Association was publishing five special periodicals, today there are nine, including the *Quarterly Cumulative Index Medicus*. There had not been established the Council on Foods, the Bureau of Medical Economics, the Bureau of Exhibits, the Bureau of Health and Public Instruction, the Council on Industrial Health and the Council on Physical Therapy. Since that time the American Medical Association has built a new building for its headquarters office. The number of employees has increased from 365 to 615. These simple facts indicate to some extent the expansion in the activities of the American Medical Association.

Next let us consider the problems that concerned the organized medical profession in 1923. The speaker of the House of Delegates called for a campaign against the socialization of medicine and urged the development of a department of health in the cabinet. These messages were reiterated by the President of the Association, Dr. George E. de Schweinitz. The President-Elect, Dr. Ray Lyman Wilbur, urged the establishment of a board of strategy in the American Medical Association which would be planning from five to ten years ahead for the work of the organization. The House of Delegates concerned itself with problems related chiefly to medical education, the abuse of clinics and the conduct of the affairs of the organization. There was much agitation concerning the lawful or unlawful prescribing of alcoholic liquors. Moreover, it was moved to create a section on radiology for the scientific advancement of

that specialty. The Scientific Assembly concerned itself with symposiums on diet, on the mental health of the child and on preventive medicine. At the San Francisco session of 1923 Dr. William Allen Pursey was made President-Elect.

A reference to the report of the Board of Trustees and to the reports of officers, published in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* last week, and to the preliminary programs for the San Francisco session, which appear in this issue, indicate the advances that have taken place during fifteen years. The medical profession still maintains its successful opposition to socialization or federalization of medical care. It is now embarked on a nationwide program for the study of medical care and extension of medical service. This campaign, in the interest of the American people, has been one of the main problems before the American medical profession during this period. The new councils and bureaus indicate how completely the Association has accepted its responsibility in relationship to the care of the people's health. New methods of living and new problems of our civilization become promptly the concern of the American medical profession.

Attention should be called specifically to the program of the General Scientific Meetings, which appears on page 1574. At the time of the previous San Francisco session there was no such elaborate planning for carrying to the medical profession, through the clinical lectures, the latest advances in various fields. The special symposium on health problems in education is an indication of the manner in which the medical profession is cooperating with the schools in recognition of the fact that health must be the first objective in all education. The special symposiums that have been arranged in the various sections are a further indication of present interests, including particularly those concerned with the blood dyscrasias, the newer methods of treatment of schizophrenia, the occupational dermatoses, and infections of the sinuses. The Scientific Exhibit, described on page 1588, will reveal special sections devoted to anesthesia and to fractures, with innumerable exhibits in which men who have developed new methods in diagnosis, treatment and prevention of disease will themselves demonstrate the details of their work.

The annual session of the American Medical Association has become the leading event of the medical year, attracting from 6,000 to 10,000 physicians and representing every phase of medical interest. There is no reason to doubt that the San Francisco session will this year constitute the greatest medical assemblage ever held on the Pacific coast.

Already the demand for rooms is so great that many of the leading hotels are placed under considerable pressure. If you are planning to come to San Francisco, write at once, using the coupon on page 90 of this issue of *THE JOURNAL*, so that a suitable room may be found for you.

## THE NATURE OF XANTHOMATOSIS

Xanthomatosis has for many years been a condition of obscure etiology. Most observers agree that the syndrome xanthomatosis is a manifestation of disturbed lipid metabolism. Many unsolved questions remain with regard to the lipid metabolism itself and its relation to the general metabolism. No doubt xanthomatosis includes a number of heretofore unrelated clinical conditions. First it was described as a rare disease of the skin. The commonly seen lesion is the familiar orange-yellow plaque on the eyelids of persons past middle life. The lesions are not confined to the skin but are observed in connection with tendon sheaths, mucous membranes, the heart, the peritoneum, the liver, the spleen and other internal organs. The lesions appear as plaques or nodules of a striking sulfur yellow to yellow-brown. The characteristic microscopic feature is the presence of large bright polyhedral cells with vacuolated or "foamy" protoplasm due to the high content of a fatlike substance. With the discovery by Panzer in 1906 and by Pinkus and Ludwig Pick in 1908 that the fatlike substances in the xanthomatous lesions were doubly refractile lipoids, the concept was formed that these lesions resulted from a disturbance of lipid metabolism. Aschoff's demonstration of the selective affinity of the macrophages for various dyes as well as for fat substances made it possible to regard the foam cell as a cell of the reticulo-endothelial system, infiltrated with lipoids. Rowland<sup>1</sup> suggested that xanthomatous lesions represent a hyperplastic reaction of the reticulo-endothelial system resulting from infiltration of lipoids in excess in the body fluids. Xanthomatous lesions then represent an attempt to rid the body fluids of lipoids which cannot be properly excreted and which act as an irritant. Rowland proposed the name xanthomatosis to include the various manifestations related to disturbed lipid metabolism.

Pinkus and Pick have demonstrated that the fat substances in the xanthomatous lesions are the doubly refractile lipids, cholesterol and cholesterol esters. They believed that certain cells became infiltrated with cholesterol because of an increased supply from the blood. This concept was supported by Aschoff's demonstration that reticulo-endothelial cells were able to take up certain dyes and fatlike substances from the blood.

Antschkow in his cholesterol feeding experiments was able to produce foam cells in rabbits. It appeared, therefore, that hypercholesteremia was a necessary condition for the product of xanthomatosis. Chauffard and Laroche actually demonstrated the existence of hypercholesteremia in patients with xanthoma. They saw an analogy between the xanthomatous nodules due to excess of cholesterol in the blood and the tophi of

gout due to the excess of uric acid in the blood. Later investigators found that cholesteremia does not always result in xanthoma eruption. Clinical observations suggest that trauma, friction or infection may act as accessory factors in producing these lesions.

Thannhauser and Magendantz<sup>2</sup> insist that there is no proof of the existence of such a disease as a general metabolic disturbance of the cholesterol metabolism and suggest that the metabolic disturbance in question is an intracellular disturbance confined to the reticular cells themselves, in consequence of which they may become xanthoma cells not by an increased supply but as the result of an intracellular metabolic disorder. These authors point out that hypercholesteremia is found only in one group of xanthomatous organs while the other shows a normal amount of cholesterol in spite of the fact that the same histologic constituents are found in the two. Thus, in their opinion, favors the idea that one has to deal here with a local cellular disturbance rather than with a general metabolic disturbance of cholesterol synthesis. They regard xanthoma cells as fat cells with embryonal qualities able to form all kinds of lipids.

Whether the xanthoma cells represent an infiltrative, a chemical or a degenerative process, it is apparent that the disturbance of lipid metabolism of the reticulo-endothelial system is the underlying pathogenesis in a number of hitherto unrelated clinical entities. Among these should be included xanthelasma palpebrarum, xanthoma multiplex, xanthomatous tumors of tendon sheaths and generalized visceral xanthomatosis, including such apparently distinct entities as the Schuller-Christian syndrome, Niemann-Pick disease and Gaucher's disease.

## GRADUATE INSTRUCTION IN COUNTY SOCIETIES

Thirty-five years ago Sir William Osler<sup>1</sup> spoke on the educational value of the medical society. A well conducted medical society, he maintained, should represent a clearing house in which every local physician would obtain his intellectual rating and in which every physician could determine his assets and liabilities. "We doctors do not 'take stock' often enough," said Osler, "and are very apt to carry on our shelves stale out-of-date goods. The society helps to keep a man up to the times" and enables him to refurnish his mental shop with the latest wares. It keeps his mind open and receptive and counteracts that tendency to premature senility which is apt to overtake the man who lives in a routine."

The American Medical Association was founded primarily to cultivate and advance medical knowledge.

1 Rowland Russell S. Xanthomatosis and the Reticulo-Endothelial System. Correlation of an Unidentified Group of Cases Described as Defects in Membranous Bones, Exophthalmos and Diabetes Insipidus (Christian Syndrome). Arch Int Med 42: 611 (Nov.) 1928.

2 Thannhauser S. J. and Magendantz Heinz. The Different Clinical Groups of Xanthomatous Diseases. A Clinical and Physiological Study of Twenty Two Cases. Ann Int Med 11: 1662 (March) 1938.  
1 Osler William. On the Educational Value of the Medical Society. Boston M. & S. J. 148: 275 1903.



As a federation or union of constituent societies, it looks largely to its county and state organizations to share the responsibilities which were assumed ninety-one years ago. These component societies have not been unmindful of their duties. In many communities they have successfully conducted postgraduate extension courses and have made this work their most important function.

As early as 1906 the Tarrant County Medical Society of Texas had, under the stimulus of Dr J. N. McCormack, field organizer of the Association, offered twelve courses of from five to fifteen periods each on such subjects as anatomy, bacteriology, pathology, pharmacology, physiology, physical diagnosis, medical jurisprudence, history of medicine and surgery. In the next year Dr John H. Blackburn of Bowling Green, Ky., outlined a four year course of study for physicians in the Councilors Bulletin of the American Medical Association, which was distributed to officers of county and state societies throughout the country. This systematic, continuous review of what was essentially the undergraduate curriculum was a forerunner of the postgraduate plans now operating so successfully in such states as Michigan, Ohio and California. The importance of presenting clinical material for discussion was appreciated then as now. Graphs, charts and other adjuncts to informal discussions were definite aids to teaching. By 1909 approximately 350 county societies in twenty-nine states were actively participating in the American Medical Association's program.<sup>2</sup> A second four years of general review courses was given from 1911 to 1915, at which time the Council undertook its first survey of graduate medical education. Seven years later the Council again encouraged every county medical society to engage in an educational program. While it was appreciated that this was a national, a state, a community problem, it is always, in its practical application, a community problem.<sup>3</sup> At that time it was recommended that a plan of postgraduate lectures and diagnostic clinics be provided. In the next year, 1923, the President-Elect of the Association, Dr Ray Lyman Wilbur, stated that each state organization must recognize its responsibilities and take the initiative in meeting its local conditions and that each state should be urged to work out its own problems in its own way. President George E. de Schweinitz (1922) had likewise recommended that the Association should expend greater energy, especially through the state and county medical societies, in this connection. The Council on Medical Education and Hospitals was urged to take up and promote postgraduate medical education in county and district medical societies. At this time a set of principles concerning graduate medical education was adopted by the Council and endorsed by the House of Delegates.

Subsequent reports by Dr Olin West, Secretary of the Association, have indicated the increasing interests and demands of physicians for continuing training after licensure. Such efforts, stimulated by the Council, must originate locally. Frequently the hope has been expressed that a way might be found by which the American Medical Association could become actively helpful in providing clinical instruction for its members who could not avail themselves of the facilities at medical centers far removed from their homes. The survey now being conducted by the Council on Medical Education and Hospitals will indicate what has been done and also the places where help may be needed.

#### DEATHS FOLLOWING ELIXIR OF SULFANILAMIDE-MASSENGILL VI

The investigation of the deaths following the use of Elixir of Sulfanilamide-Massengill, as was brought out in the reports of officers and the Board of Trustees, published last week, was a noteworthy example of the work of the headquarters group of the American Medical Association for the protection of the public.<sup>1</sup> In this work Drs E. M. K. Geiling and Paul Cannon and their associates at the University of Chicago gave indispensable cooperation. As soon as possible after notification of apparent toxic actions following the use of this preparation was received, reports were published pointing out that diethylene glycol was the toxic agent. The number of deaths that were confirmed was seventy-six, others were reported to the government.<sup>2</sup>

Approximately six months has elapsed since this disaster. Now Drs Paul R. Cannon and E. M. K. Geiling<sup>3</sup> have published some further studies of pathologic effects, in both experimental animals and man, of Elixir of Sulfanilamide poisoning. The pathologic effects in the kidneys and livers of dogs, rats and rabbits were identical when comparable amounts of Elixir of Sulfanilamide or pure diethylene glycol alone were administered by mouth, in divided doses. When diethylene glycol, the solvent for sulfanilamide in the "Elixir," was excreted through the kidneys of the experimental animals, severe hydropic degeneration of the convoluted tubules occurred and also occlusion of the lumens. As a consequence, anuria resulted followed by acidosis and uremia. The diethylene glycol also caused a characteristic central hydropic degeneration within the liver. Essentially similar changes were observed in the kidneys and livers in necropsy material examined by them from eleven human fatal cases of poisoning by "Elixir of Sulfanilamide." Pulmonary

1 Elixir of Sulfanilamide-Massengill. Special Article from the American Medical Association Chemical Laboratory. J. A. M. A. 100:1531 (Nov. 6) 1937.

2 Deaths Due to Elixir of Sulfanilamide-Massengill. Report of the Secretary of Agriculture. J. A. M. A. 100:1945 (Dec. 11) 1937. See also Deaths Following Elixir of Sulfanilamide-Massengill editorials in THE JOURNAL Oct. 23 1937 p. 1367. October 30 p. 1456. November 6 p. 1544. November 20 p. 1727. December 11 p. 1922.

3 Cannon P. R. and Geiling E. M. K. Pathologic Effects in Elixir of Sulfanilamide Poisoning. Proc. Ins. Med. Chicago 12:111 (April 19) 1938.

2 Personal communication from Dr John H. Blackburn.

3 Minutes of the Annual Meeting of the House of Delegates of the A. M. A. St. Louis 1922 p. 29 (Dr A. D. Bevan, chairman, Council on Medical Education and Hospitals).

edema and at times bronchial pneumonia developed in both the experimental animals and in human beings. In several of the human cases diffuse symmetric cortical necrosis with recent hemorrhages was present in the kidneys, resembling in many respects the symmetric cortical necrosis that is observed in some of the toxemias of pregnancy. Hyaline thrombosis of the smaller cortical arteries and arterioles with resulting diffuse infarction of the cortex was noted. Essentially identical changes were described by Barber in five fatal cases of poisoning by dioxane, the anhydride of diethylene glycol.<sup>4</sup>

In common with other glycols, such as glycerin, diethylene glycol is a hygroscopic agent. It is not metabolized, apparently, and, according to Cannon and Geiling, may accumulate in the cells of the convoluted tubules causing them to hold more water. Its effect, they point out, may be due to cytoplasmic injury of the tubular cells with resulting disturbance of internal metabolism and severe intracellular edema. Sulfanilamide alone does not cause these results in dogs, rabbits or rats, even when given in large doses.

Several interesting pharmacologic points arise from the work necessitated by the "Elixir of Sulfanilamide-Massengill" tragedy. One emphasizes anew that acute toxicity alone is not an adequate criterion for evaluating the safety of a drug, determinations of chronic toxicity are equally important. In all cases careful pathologic studies are desirable. In work dealing with drug tolerances and toxicity, observations should be made on different species. Further experimental studies concerning the toxic effects of other glycols are under way which will lead to better understanding of this class of compounds.

## Current Comment

### PRESENT TRENDS OF FATALITY IN PULMONARY TUBERCULOSIS

Although the incidence of pulmonary tuberculosis has been decreasing in this country for a number of years, the effectiveness of present day methods of therapy is not equally well understood. Recently Drolet<sup>1</sup> has analyzed the case fatality rates from 1915 to 1935. The ratio of deaths to new cases of tuberculosis in the various communities has varied little during the past twenty years. During the period in which the incidence of the disease and the mortality have declined from 40 to 60 per cent, the ratio of deaths to new cases has declined only 5 or 6 per cent in New York, Detroit and Philadelphia, in Chicago there has been no decrease. Persons dying from tuberculosis now, however, average a slightly greater age than formerly. In the United States the average age of death of males was 36.4 years in 1913 and 41.5

years in 1933, in females it was 32.5 in 1913 and 35.8 in 1933. Similar increases in average age were noted in statistics from England and Wales. In the United States among patients in sanatoriums the death rate was 20 per cent in 1925, 23 per cent in 1931 and 24 per cent in 1934. The proportion of all tuberculous patients "isolated" in hospitals, however, is several times greater now than in the past and has risen from approximately 4 per cent in 1915 to 25 per cent in 1934. The adjustment of these figures indicates that sanatorium and surgical treatment of pulmonary tuberculosis have had little effect on the case fatality rates of the tuberculous population in the communities studied. This constitutes a surprising statistical conclusion in view of the apparent individual effectiveness of such measures as pneumothorax. Further analytic studies should be made before it can be safe to conclude that therapeutic measures in pulmonary tuberculosis are as ineffective as they appear to be statistically.

## Association News

### RADIO BROADCASTS

The American Medical Association and the National Broadcasting Company present the fifth series of network health programs, beginning Oct. 13, 1937, and running weekly through June 15, 1938. The programs are presented over the Red network each Wednesday at 2 p. m. eastern standard time, 1 p. m. central standard time, 12 o'clock noon mountain standard time and 11 a. m. Pacific standard time.

In localities where daylight saving is in effect the schedule remains the same but this brings the program one hour earlier to adjacent areas on standard time.

The hours indicated above will be effective until June 1. Programs for June 1, June 8 and June 15 will be broadcast at 12:30 p. m. eastern standard time or 1:30 eastern daylight saving time, central time is one hour earlier, mountain time two hours earlier and Pacific time three hours earlier than eastern daylight saving or standard time.

The dates and topics of the broadcasts for the next five "Your Health" programs are as follows:

#### Mothers and Children

- May 11—Hospitals Aid Health: the place of the hospital in the health program of the individual and the community.  
May 18—Runabouts, 1938 Model: the preschool child and the health and personality problems of that age.

#### Using Health Knowledge

- May 25—The Health Check-Up: periodic health examination and what follows, and why.  
June 1—Vacation Plays and Misplays: making the vacation a real contribution to health and recreation.  
June 8—Graduation and Then: What a new phase of life begins at commencement, and health contributes to success.

The stations on the Red network are privileged to broadcast the program, but since it is a noncommercial program they are not obliged to do so. Interest on the part of medical societies, women's auxiliaries and others may have weight with program directors of local stations. A personal visit to the program director might be advisable if the program is not being taken by a local station. This is an opportunity for the appropriate committees of county medical societies to indicate their interest in having this program broadcast in their community and to enlist the interest of other groups.

<sup>4</sup> Barber, Hugh. Hemorrhagic Nephritis and Necrosis of the Liver from Dioxane Poisoning. *Guy's Hosp. Rep.* 84: 267 (July) 1934.  
<sup>1</sup> Drolet, Godias J. Present Trend of Case Fatality Rates in Tuberculosis. *Am. Rev. Tuberc.* 37: 125 (Feb.) 1938.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### CALIFORNIA

**The Herzstein Lectures**—Dr George W. Pickering, department of clinical research, University College Hospital Medical School, London, England, will deliver the sixth course of the Morris Herzstein Lectures in San Francisco, under the auspices of Stanford University and the University of California. Following are the dates and titles of the lectures:

- May 23 The Problem of High Blood Pressure in Man
- May 24 Experimental Hypertension
- May 25 The Renal Pressor Substance

Dr Pickering will also give a popular lecture at a luncheon May 26 on "The Biological Significance of Pain."

### FLORIDA

**State Medical Meeting at Miami**—The sixty-fifth annual meeting of the Florida Medical Association will be held at the Columbus Hotel, Miami, May 9-11, under the presidency of Dr Edward Jelks, Jacksonville. The Dade County Medical Society will act as host. The speakers will include:

- Dr Harrison A. Walker, Miami Beach: Preoperative and Postoperative Care in Intestinal Obstruction
- Dr Luther W. Holloway, Jacksonville: Quinine Blindness in Children
- Dr Carol C. Webb, Pensacola: Hand Infections
- Dr Milton Paul Travers, Miami Beach: Frequent Causes of Prolonged Disability in Fracture Treatment
- Dr Aubrey L. Huskey, Chattahoochee: Insulin Shock Therapy
- Drs Robert E. Repass and Carl S. McEmore, Miami Beach: Relation of Carcinoma of the Larynx to Precancerous Lesions
- Dr Orville N. Nelson, Bay Pines: Management of Sinusitis
- Dr James L. Borland, Jacksonville: Diagnosis and Treatment of Amebic Dysentery
- Dr John R. Boling, Tampa: Presacral Nerve Resection for the Relief of Pelvic Pain
- Dr Samuel Marion Salley, Miami: Disturbances of Cardiac Rhythm
- Dr James G. Lyster, Jacksonville: Prefrontal Lobotomy for Involuntary Melancholia
- Dr Albert B. McCreary, Jacksonville: Final Responsibility of Public Health Rests on the Medical Profession
- Dr Lauren M. Sompayrac, Jacksonville: Lupus Erythematosus
- Dr Jess V. Cohn, Hollywood: Adolescent Turmoil, Agitated Depression with Panic Reaction
- Dr Carl D. Hoffmann, Orlando: Sterility

Dr Warren F. Draper, assistant surgeon general, U. S. Public Health Service, Washington, D. C., will address a public meeting in Bay Front Park Monday evening. Golf and fishing are features of the entertainment program, the association dinner will be held Tuesday evening and the annual smoker Monday evening. Associations meeting concurrently with the state society include the Florida Railway Surgeons' Association, the Florida Society of Dermatology and Syphilology, Florida section, Southeastern Surgical Congress, the Florida Pediatric Society and the Florida Radiological Society. A program for women has also been planned under the auspices of the auxiliary to the Dade County Medical Society.

### ILLINOIS

**State Medical Meeting at Springfield May 17-19**—The ninety-eighth annual meeting of the Illinois State Medical Society will be held at the Knights of Columbus Building, Springfield, May 17-19, under the presidency of Dr Rollo K. Packard, Chicago. Dr Irvn Abell, Louisville, Ky., President Elect of the American Medical Association, will deliver the oration in surgery Wednesday May 18 on "Breast Tumors." Out of state speakers will include Drs Elmer L. Scovringhaus, Madison, Wis., on "Pituitary Therapy in General Practice," and Albert D. Ruedemann, Cleveland, on "Exophthalmos." The program will include symposiums on intestinal obstruction, diseases of the respiratory tract, injuries of the abdomen and treatment of malignant disease. Other speakers will include:

- Dr Arthur F. Goodyear, Decatur: Sulfanilamide—Its Use in General Practice
- Dr Abraham A. Low, Chicago: Metrazol Shock Treatment of Functional Psychoses
- Dr Tell Nelson, Chicago: Relation of Allergy to Diseases of the Respiratory Tract
- Dr Harry Culver, Chicago: Traumatic Lesions of the Male Urethra
- Dr Edmund P. Haller, Decatur: X-Ray Therapy of the Uterus and Adnexa

A conference on diseases of children will be held Tuesday morning consisting of a symposium on the newborn. The annual secretaries' conference will be held Tuesday morning and the annual meeting of the woman's auxiliary on Monday, Tuesday and Wednesday.

### Chicago

**Testing Stations for Venereal Diseases**—The department of health opened on a permanent basis thirty-six neighborhood testing stations for syphilis April 11. In addition there are welfare stations and park district fieldhouses to take care of volunteers who wish to undergo these tests. Since Nov. 30, 1937, the board of health has tested 19,872 volunteers and found 904, or 4.5 per cent infected. Of 6,566 high school children, sixty-one, or 0.9 per cent, were found to be infected, newspapers reported.

**Dr Schiller Appointed Pathologist at Cook County Hospital**—Dr Walter Schiller, pathologist at Jewish Memorial Hospital, New York, has been appointed chief of the pathology department at Cook County Hospital to succeed the late Dr Richard H. Jaffe. Aged 50 and a native of Vienna, Dr Schiller graduated at the University of Vienna in 1912. He has served as assistant pathologist of the Military Hospital, Vienna, resident pathologist of the Clinic of Internal Medicine and for fifteen years as assistant to the Second Gynecologic Clinic and director of laboratories.

### MICHIGAN

**Personal**—Dr Thomas E. Gibson, Paw Paw, has been appointed health director of Van Buren County; he held a similar position in Eaton County. Dr Richard M. Johnson has been appointed medical director of Eloise Hospital, Detroit.

**Conference on Mental Hygiene**—The Michigan Society for Mental Hygiene held its second annual spring conference at the Hotel Statler, Detroit, April 7-8. The following were on the program:

- Dr John M. Dorsey, Ann Arbor: Intelligent Home Living
- Dr George S. Stevenson, New York: What Constitutes a Good Child Guidance Clinic
- Dr Harry Stack Sullivan, New York: Application of the Principles of Mental Hygiene to the Practice of Medicine
- Dr Henry C. Schumacher, Cleveland: Human Relations in the Business World
- Charles Scott Berris, Ph.D., Columbus, Ohio: What Has Mental Hygiene to Offer to Special Education
- Dr Bernard Gluck, New York: Contemporary Issues in the Relationship Between Psychiatry and the Law

### NEW HAMPSHIRE

**State Medical Meeting at Manchester**—The one hundred and forty-seventh annual meeting of the New Hampshire Medical Society will be held in Manchester May 17-18 at the Hotel Carpenter under the presidency of Dr Samuel T. Ladd, Portsmouth. Guest speakers will be:

- Dr John H. Upham, Columbus, Ohio: President American Medical Association: Blood Dyscrasias
- Dr Frederick T. Lord, Boston: Treatment of Pneumonia
- Dr Donald S. King, Boston: Cancer of the Lung
- Dr Edward D. Churchill, Boston: Pneumonia
- Dr Isidor S. Ravdin, Philadelphia: Surgical Diseases of the Extrahepatic Bile Ducts
- Dr Hayes E. Martin, New York: Diagnosis and Treatment of Intra-Oral Cancer
- Dr Walter Bauer, Boston: Treatment of Arthritis

New Hampshire physicians will conduct round table conferences Tuesday and Wednesday mornings. Dr Upham and Dr Ladd will speak at the annual banquet Wednesday evening. At this meeting fifty-year medals will be presented to Drs Aloha H. Harriman, Laconia; Frederick L. Hawkins, Meredith; and Henri O. Smith, Hudson.

### NEW JERSEY

**State Medical Meeting at Atlantic City**—The annual meeting of the Medical Society of New Jersey will be held at the Ambassador Hotel, Atlantic City, May 17-19. There will be a general scientific session Tuesday evening May 17 with Dr George W. Crile, Cleveland, as the speaker on "Clinical Results in the Surgical Treatment of Essential Hypertension." Guest speakers at the section meetings include:

- Dr George B. Easterman, Rochester, Minn.: Newer Aspects in Etiology and Treatment of Ulcer of the Gastrointestinal Tract
- Dr Toufic-Nicola, New York: Recurrent Dislocation of the Shoulder
- Dr Thomas H. Lanman, Boston: Surgery in the Abdomen in Infants and Children
- Dr Meredith F. Campbell, New York: Pathology and Treatment of Urinary Infection in Children
- Dr Josephine B. Neal, New York: Treatment of Infections of the Central Nervous System with Special Reference to Sulfanilamide
- Dr George T. Pick, New York: The Clinical Method of Contact Person Ray Therapy
- Dr Leonard H. Nichols, Cleveland: The William C. Herriman Lecture: Partial and Complete Ureteral Obstruction as a Renal Surgical Problem
- Dr Harvey B. Matthews, Brooklyn: Hemorrhages of Internal Organs
- Dr Leroy A. Schell, Boston: Diagnosis and Treatment of Malocclusion of the Jaws
- Dr Arthur M. Fishberg, New York: Recognition of Early Signs of Heart Failure Frequently Overlooked

## NEW YORK

**Society News**—Dr Isaac H. Levy, New York, addressed the Cortland County Medical Society March 18 on 'Lesions of the Opening of the Stomach'—Dr Delmas K. Kitchen, Detroit, addressed the Chautauqua County Medical Society March 16 on recent advances in the use of endocrine products—Dr William T. Doran, New York, addressed the Fulton County Medical Society Gloversville, March 18 on 'Intra-Abdominal Conditions Due to Trauma'—Drs Edward E. Gillick, Niagara Falls, and Burton T. Simpson, Buffalo, addressed the Niagara County Medical Society, Niagara Falls, March 8 on 'Control of Syphilis' and 'Recent Advances in the Etiology of Cancer' respectively—Dr Ralph Pemberton, Philadelphia, addressed the Medical Society of the County of Westchester, April 19, on arthritis—Dr Soma Weiss, Boston, addressed the Rochester Academy of Medicine April 7 on 'Syncope, Shock and Collapse'

## New York City

**Harlow Brooks Lecture**—The Washington Square Medical Society has established the Harlow Brooks Memorial Lecture in memory of the late Dr Brooks, who was a member of the society. Dr Emanuel Libman gave the first lecture April 26 on 'Diagnostic Studies in Pain with Special Reference to Abdominal Disorders'

**Centennial of Dr John Shaw Billings**—The one hundredth anniversary of the birth of Dr John Shaw Billings, under whose direction the Army Medical Library was developed and the *Index Catalogue* was compiled, was observed by a special exhibit at the New York Public Library, of which he was director after his retirement from the army library in 1895. Dr Billings was a surgeon during the Civil War and in 1864 was transferred to the office of the surgeon general. The exhibit in his honor, which was mainly biographic, was on view during the week of April 12.

**Prize for Research on Kidney Diseases**—The New York Academy of Medicine announces that approximately \$1,000 is available under the Edward N. Gibbs Memorial Prize toward original research on diseases of the kidney during 1938. Candidates must be physicians who have been graduated at least three years and be residents of the United States. They shall submit 'evidence of research already performed and of facilities to prosecute research upon the causation, pathology and newer methods of treatment of diseases of the kidney'. The award may be continued through not more than three years to any one person. Applications with the required evidence should be addressed to the academy, 2 East One Hundred and Third Street, before June 1.

**Benjamin White Dies**—Benjamin White, Ph.D., for many years a bacteriologist in New York and Massachusetts, died March 28 in Southern Pines, N.C., aged 59. After receiving his doctorate from Yale University in 1903 Dr White was appointed assistant director of the Hoagland Laboratory, Brooklyn and became director in 1907. From 1914 to 1920 he was assistant director of the bacteriologic laboratory of the New York City Department of Health. In the latter year he became director of the division of biologic laboratories, Massachusetts Department of Health, where he remained until his retirement in 1933 because of ill health. Since his retirement he had completed a book on 'The Biology of the Pneumococcus' sponsored by the Commonwealth Fund of which he was a consultant. He was an honorary fellow of the Massachusetts Medical Society and a member of many scientific societies and of the editorial board of the *New England Journal of Medicine*. During the World War he served as a captain in the Sanitary Corps, U.S. Army.

## OKLAHOMA

**State Medical Meeting at Muskogee**—The forty-sixth annual session of the Oklahoma State Medical Association will be held in Muskogee May 9-11, with headquarters at the Severs Hotel and under the presidency of Dr Samuel A. McKeel. Ada. Guest speakers will address two general sessions as follows:

Dr Frank C. Neff, Kansas City, Mo. 'Management of the Hypertensive Period of Early Infancy: Observations from the Current Year's Experience with Medical Cases in a Children's Hospital'.  
Dr William S. Middleton, Madison, Wis. 'The Surgery of Pulmonary Tuberculosis from a Medical Standpoint'.  
Dr Edward H. Ochsner, Chicago. 'The Middle Way: The Socialization of Medicine'.

In addition, Dr Alexander Marble, Boston, will address the section on general medicine on 'Diabetes Mellitus—Recent

Advances in Its Treatment' and Dr Roland M. Klemme, St. Louis, the section on general surgery on 'Diagnosis and Treatment of Trigeminal Neuralgia'. The section on genito-urinary diseases and syphilology will present a symposium on gonorrhea given by Drs Robert H. Akim, Oklahoma City, Julius H. Howe, Ponca City, and Allen R. Russell, McAlester. The same section will sponsor a symposium on syphilis given by Drs David V. Hudson and James Stevenson, Tulsa, Charles R. Rayburn, Norman, and Charles M. Pearce, Oklahoma City. The annual golf tournament will be held Monday May 9 at the Muskogee Country Club. The president's reception and dance will be Tuesday evening. The Woman's Auxiliary will hold its meeting Monday.

## SOUTH CAROLINA

**State Medical Meeting at Myrtle Beach**—The ninetieth annual meeting of the South Carolina Medical Association will be held at Myrtle Beach May 17-19 with headquarters at the Ocean Forest Hotel. The scientific program will open with a symposium on traumatic surgery Tuesday evening May 17, presented by Drs Julian Deryl Hart, Durham, N.C., James C. McLeod, Florence, Austin T. Moore, Columbia and James R. Young, Anderson. An innovation this year will be round table discussions each afternoon. Dr Oren Moore, Charlotte, N.C., will conduct one of these on 'Office Gynecology' and Dr Richard Torpin, Augusta, Ga., one on obstetrics. Dr Isaac A. Bigger, Richmond, Va., will deliver the annual oration on surgery on 'Indications for Surgical Treatment and Lesions of the Pericardium and Heart'. Among South Carolina physicians who will participate in the program will be:

Dr George H. Bunch, Columbia. 'Acute Perforation of Gastric and Duodenal Ulcers'.  
Dr William Weston, Jr., Columbia. 'Congenital Vomiting—Cause and Treatment'.  
Dr William R. Batton, Columbia. 'My Conclusions from Six Years Experience with Transurethral Surgery of the Prostate'.  
Drs Lester A. Wilson and Arthur L. Rivers, Charleston. 'Eclampsia'.

The South Carolina X-Ray Society will hold its annual meeting May 18 in Myrtle Beach, with James L. Weatherwax, A.M., University of Pennsylvania, Philadelphia, as the guest speaker.

## TENNESSEE

**State Society Election**—Dr Tom R. Barry, Knoxville, was elected president of the Tennessee State Medical Association at the annual meeting in Nashville April 12-14. Vice presidents elected were Drs William S. Rude, Ridgetop, William A. Garrott, Cleveland, and John Jackson, Dyer. Next year's session will be in Jackson.

**Personal**—Dr William J. Murphy, Kingsport, assistant health officer of Sullivan County, has been appointed to the staff of the state department of health for work in venereal disease control, newspapers have reported—Dr Kendall B. Corbin, Stanford University, Calif., has been appointed associate professor of anatomy and histology at the University of Tennessee School of Medicine, Memphis.

## WASHINGTON

**Society News**—A program on tuberculosis was presented before the King County Medical Society, Seattle, April 18 by Drs Armin C. Rembe, Byron F. Francis, Harold E. Nichols and Herbert L. Hartley—Drs Bernard P. Mullen and John A. Duncan, Seattle, addressed the Chelan County Medical Society March 9 on 'Management of Abdominal Adhesions' and 'Nonpenetrating Abdominal Injuries' respectively—Drs Homer D. Dudley, Seattle, and John C. Lyman, Walla Walla, addressed the Spokane County Medical Society, Spokane, April 14 on 'Treatment of Primary Injuries of the Hand' and 'So-Called Regional Ileitis' respectively—Drs Roger Anderson and John A. Duncan, Seattle, addressed the Cowlitz County Medical Society, Longview, March 17, on 'Fractures of the Upper and Lower Extremities' and 'Abdominal Injuries, Diagnosis and Treatment' respectively—Dr John G. Cheetam, Portland, addressed the Grays Harbor County Medical Society, Aberdeen, March 3 on 'Newer Concepts in the Gonorrhea Problem: Triphasic Treatment by Use of Local Therapy, Sulfanilamide and Hyperpyrexia Combined'—Drs Guy E. Griffith and William H. Ludwig, Tacoma, addressed the Pierce County Medical Society, Tacoma, March 8 on 'Attempts to Correlate Conflicting Ideas of Sinus Surgery and Multiple Sclerosis in Retrobulbar Neuritis' and 'Submucous Resection of the Nasal Septum' respectively.

## GENERAL

**Twenty-Fifth Anniversary of Cancer Society**—The American Society for the Control of Cancer celebrated the twenty-fifth anniversary of its founding with a dinner at the Hotel Ambassador March 25. Among the speakers were Drs. James Ewing, New York, Ellis Fischel, St. Louis, and Bowman C. Crowell, Chicago. Clarence C. Little, Sc.D., Bar Harbor, Maine, managing director of the society, presided. Dr. John J. Morton Jr., Rochester, N. Y., was elected president and Dr. George M. Smith, New Haven, Conn., vice president.

**Public Health Association Invites Physicians to Portland Meeting**—The annual meeting of the Western Branch of the American Public Health Association will be held in Portland, Ore., June 6-8. The secretary, Dr. William P. Shepard, 600 Stockton Street, San Francisco, suggests that physicians attending the annual session of the American Medical Association in San Francisco June 13-17 may wish to attend the public health meeting and remain in Portland for the Rose Festival which immediately follows. Inquiries may be addressed to Dr. Shepard or William Levin, Dr. P.H., 816 Oregon Building, Portland. Dr. Shepard notes that the railroad fare from the East to San Francisco via Portland is the same as to San Francisco direct.

**Society News**—Two sessions of the sixteenth annual Midwest Safety Conference at the Hotel Sherman, Chicago, May 17-19, will be devoted to consideration of occupational disease. Among the speakers will be Drs. Alice Hamilton, Hadlyme, Conn., health hazards in materials used in painting, Arbie L. Brooks, Detroit, health hazards in the use of solvents in metal cleaning, Milton H. Kronenberg, Chicago, inspection of plants for health hazards, and Clarence O. Sappington, Chicago, who will conduct a "question box luncheon."—Dr. Herbert Fay H. Jones, Little Rock, Ark., was named president elect of the Mid-South Postgraduate Medical Assembly at its annual meeting in Memphis, Tenn., February 15-18. Vice presidents elected were Drs. Lawrence W. Long, Jackson, Miss., Ernest J. Horner, Jonesboro, Ark., and Otis Whitlow, Savannah, Tenn. Dr. Robert M. Adams, Ripley, Miss., is president.

**American Neisserian Medical Society**—The fourth annual session of the American Neisserian Medical Society will be held in Washington, D. C., May 16-17 at the U. S. Public Health Service building. The first morning will be devoted to a symposium on sulfanilamide, with Dr. Perrin H. Long, Baltimore, as the guest speaker. In the afternoon there will be the presidential address of Dr. Charles C. Norris, Philadelphia and the following section meetings: male clinical, female clinical and research and laboratory. Other speakers will be:

- Dr. Max L. Brodny, Boston: History of Gonorrhea During the Middle Ages.
- Dr. Charles Walter Clarke, New York: Suggestions for Elevating the Standard of Gonorrhea Clinics.
- Dr. Nels A. Nelson, Boston: Providing Treatment for the Indigent.
- Dr. Raymond A. Vonderlehr and Lida J. Usilton, U. S. Public Health Service: The Epidemiology of Gonorrhea.
- Dr. Charles M. Carpenter, Rochester, N. Y.: The Effect of Gonotoxin on Mice and Its Neutralization with Antitoxin.

**American Congress on Obstetrics and Gynecology**—Plans for an American Congress on Obstetrics and Gynecology in Cleveland during the week of Sept. 11, 1939, have been announced. Dr. Fred L. Adair, Chicago, is general chairman and Dr. James R. McCord, Atlanta, Ga., is secretary of the congress. The directors of the American Committee on Maternal Welfare are the governing body. They are Drs. Leroy A. Calkins, Kansas City, Mo., Robert L. DeNormandie, Boston, George W. Kosmak, New York, Robert D. Mussey, Rochester, Minn., Everett D. Plass, Iowa City, and Philip F. Williams, Philadelphia. The congress is to be organized to meet the interests of various groups, including practicing physicians, medical educators, nurses, public health workers, hospital administrators and others interested. Morning sessions will be reserved for group meetings and the afternoons for general discussions. Evening sessions will be arranged for the public. There will be scientific and commercial exhibits. Inquiries may be addressed to the general chairman at the executive office, 650 Rush Street, Chicago.

**Winners in Traffic Safety Contest**—Memphis, Tenn., won the national grand prize in the sixth national safety traffic contest sponsored by the National Safety Council for the calendar year 1937. The award was made in recognition of the city's comprehensive safety program as well as its safety record. Memphis had thirty-four traffic deaths as compared to fifty in 1936 and an average of forty-eight for the

three years preceding 1937. The cities that won first places in their population groups were as follows: Milwaukee, cities with 500,000 or more, Hartford, Conn., cities of from 100,000 to 250,000, Beaumont, Texas, and Sacramento, Calif., tied among cities of from 50,000 to 100,000. Everett, Wash., 25,000 to 50,000, and Des Plaines, Ill., 10,000 to 25,000. There were 113 cities with populations between 5,000 and 10,000 that went through 1937 without a traffic death. Massachusetts won the grand prize among states because of its low death rate 96 per ten million miles traveled as compared with a national average of 159, its reduction from previous years and its program of safety activities. Bronze plaques were presented to the winning cities and states at a dinner in Washington, D. C., April 12.

**Health Among Industrial Policyholders**—A new low mortality rate was established in 1937 by the 17,700,000 industrial policyholders of the Metropolitan Life Insurance Company, according to a recent report in the *Statistical Bulletin*. The rate for all causes was 8.221 per thousand insured lives, the lowest ever recorded by the company. New low records were reported for eight causes: typhoid fever, scarlet fever, tuberculosis, chronic nephritis, diseases arising out of pregnancy and childbirth, homicides, accidental burns and railroad accidents. In this group the tuberculosis mortality continued to drop, contrary to expectations. The 1937 rate was 51.3 per hundred thousand, compared with 54.3 for the previous year. Typhoid for the first time dropped below 1 per cent, with a rate of .09. Heart disease was the leading cause of death but the rate was slightly less than that for 1936. 157 is compared with 161, it was found that the rate was declining among young persons. Cancer stood second on the list with a rate of 94.1, compared with 93.9 for the previous year. Dr. betes set a new maximum rate of 25 per hundred thousand. The suicide death rate was 8.8, a continued drop since 1932, when the rate was 10.6. The accident rate was the lowest on record for the group of policyholders, 53.6, this was achieved in spite of the increased numbers of wage earners employed and thus exposed to more hazards. Automobile accidents, however, increased by 4 per cent, with a rate of 20.9 as compared with 20.1 in 1936.

**Medical Bills in Congress—Bills Introduced**—S. 3914, introduced by Senator Barkley, Kentucky, proposes to provide, in addition to the annual sum of \$3,800,000 now available, the following sums for extending and improving maternity care and the care of infants for the fiscal year ending June 30, 1939, \$3,000,000, for the fiscal year ending June 30, 1940, \$3,000,000, for the fiscal year ending June 30, 1941, \$12,000,000, for the fiscal year ending June 30, 1942, \$16,000,000, for the fiscal year ending June 30, 1943, \$20,000,000, and for each fiscal year thereafter, such additional sums as may be needed. H. R. 10442, introduced by Representative O'Day, New York, proposes to amend the Social Security Act by striking from it the exemptions in favor of corporations, community chests, funds or foundations organized and operated exclusively for religious, charitable, scientific, literary or educational purposes, or for the prevention of cruelty to children or animals. H. Res. 473, submitted by Representative Scott, California, proposes to create a House select committee to (1) inquire into the organization, objectives and activities of Group Health Association, Incorporated, of the District of Columbia from the point of view of its effect on medical ethics and the economic soundness and social desirability of this plan of operation and (2) inquire into the activities of the American Medical Association and of state and county medical societies in relation to Group Health Association Incorporated. H. Res. 475, submitted by Representative Shafer, Michigan, proposes to create a House select committee to inquire into the organization and activities of Group Health Association. H. Res. 476, submitted by Representative Shafer, Michigan, provides that whereas Group Health Association organized to provide medical care for government employees obtained from the Home Owners Loan Corporation \$40,000 of the taxpayer's money to defray operating expenses, and whereas this expenditure of \$40,000 by the Home Owners Loan Corporation has been declared illegal and improper by the Comptroller General of the United States, the Appropriations Committee of the House of Representatives and the United States district attorney, and whereas Group Health Association and the Home Owners Loan Corporation have refused to take cognizance of the rulings that this expenditure is illegal and improper. It is resolved that the Attorney General of the United States be instructed immediately to take necessary legal action to recover for the United States Treasury this sum of \$40,000.



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

April 9, 1938

#### The Treatment of Anterior Poliomyelitis

At a meeting of the Manchester Medical Society, Dr R W Brookfield discussed the treatment of anterior poliomyelitis. Apart from its value in diagnosis, he said that lumbar puncture was a useful therapeutic measure, the increased intracranial pressure was diminished and the symptoms were often relieved, particularly with regard to meningeal irritation. There was some experimental justification for giving methenamine, as it had been recovered from the cerebrospinal fluid and had prevented the onset of paralysis in monkeys. Convalescent serum had been extensively used and the serum of many adults who had not suffered from the disease had similar or greater protective power. In the earlier reports the verdict was almost invariably favorable to serum treatment, but controls were lacking. Figures of the epidemics in the United States in 1927-1928 and in Manitoba in 1928 seemed to show a definitely favorable effect, but the figures of W H Park for the New York epidemic of 1931 showed no appreciable influence on the course of the disease. If the virus gained access to the nervous system along the olfactory nerves and then traveled in the nervous system along the axis cylinders, as the work of Hurst and others suggested, it was comprehensible that antibodies introduced into the blood or cerebrospinal fluid had little chance of establishing contact with the virus once infection had taken place. But Brookfield would not take the responsibility of neglecting serum treatment in such a grave disease. Once paralysis had supervened, the problem of treatment became increasingly orthopedic. The accepted treatment was rest of the limb by means of light splints and prevention of stretching of the paralyzed muscles.

#### The Promotion of Physical Development

In opening a discussion at a meeting of the section of physical medicine of the Royal Society of Medicine, Lord Dawson, president of the Royal College of Physicians, said that proficiency in games often existed with deficiency of frame and function. Also games, unless correlated with basic physical training, could inflict overstrain. Sports and games were the fulfilment of physical training and should rest on it, for planned physical exercises increased the strength, control and response of the body. Moreover, physical training developed certain qualities which were basic to sound physical education—posture, poise, flexibility and rhythm of movement and efficient respiration. The government had decided to establish a national school of educative and recreative training, and the board of education is actively concerning itself with the realization of that project. In it teachers of anatomy and physiology will work side by side with teachers of physical training. The total functional value of the individual will be studied, having regard to his makeup and environment.

Physical education would need the guidance of trained physicians. In the future those who aspired to be medical officers of schools would require to include in their training a knowledge of physical education. Other measures recommended by Lord Dawson were to push to the forefront the best of our youth who would create a standard for their own generation, to consider the granting of loans (as in Germany) to medically approved marriages, the obligation to repay being reduced on the birth of each child, and to institute motherhood clinics. In short we should plan for quality. When posts were to be filled by competitive examination, this should include tests not only for mind but also for body.

#### A Sealed Faraday Document Opened After a Hundred Years

In 1832 Michael Faraday deposited a sealed letter with the Royal Society, which has just been opened. At the time he wrote the letter only the most elementary facts were known about magnetism and electricity. Electric bells and telegraphs were unknown and it had been discovered only a few years previously that magnetism could be produced by electricity. Faraday argued that conversely it should be possible to produce electricity from magnetism. For nearly seven years his experiments were unsuccessful until in 1831 the reason of his failures became apparent. Then in a few days he made a series of brilliant researches from which the whole science of electricity and magnetism developed. He found that an electric current was generated whenever a conductor was moved toward or away from a magnet. He was led to conclude that "magnetic action is progressive and requires time for its transmission." This was a revolutionary theory—the instinctive deduction of a brilliant experimentalist—which he could not prove. But he was so sure of its truth that he took the unusual course of depositing a sealed statement of his views with the secretary of the Royal Society, in whose safe it has since remained. In it he wrote "I am inclined to compare the diffusion of magnetic forces to the vibrations on the surface of disturbed water or those of air in the phenomena of sound."

These views I wish to work out experimentally, but as the experiments may in their course be subject to the observation of others, I wish, by depositing this paper in the care of the Royal Society, to take possession, as it were, of a certain date, and so have right, if they are confirmed by experiments, to claim credit for the views at that date." Maxwell proved mathematically in 1865 that electromagnetic phenomena are propagated through space in the form of a wave motion with the velocity of light, but it has not been previously known that Faraday was the original author of the theory in 1832. The theory remained unconfirmed experimentally until Hertz showed in 1888 how to produce and detect electromagnetic waves. It is universally recognized that Faraday was the greatest experimentalist that the science of electricity has known, but here is a new proof of his genius. His unerring instinct in conceiving the time factor and the wave theory, which he had no means of proving, is amazing.

### PARIS

(From Our Regular Correspondent)

April 9, 1938

#### Early Diagnosis of Gastric Cancer

An effort is being made at the clinic of Prof A Gosset of Paris to recognize cancer of the stomach at the onset. A team has been organized which includes, besides the surgeon, a radiologist, an internist and a pathologist who have intensively studied the question of the earliest stages of gastric cancer for years. At the March 11 meeting of the Societe medicale des hopitaux a case of incipient gastric cancer was reported by Professor Gosset and his co-workers Drs Guttmann Bertrand and Garcia-Calderon. This case forms one of a series reported during the last eighteen months. Although invisible on gross examination at operation, the diagnosis of gastric cancer could be readily made microscopically. A woman aged 58 had noticed digestive disturbances during the preceding six or seven months, becoming very marked during the four months before being first seen by Professor Gosset in October 1937. Radiography revealed in the prepyloric region of the stomach a change in the outline which Dr Rene Guttmann has termed *niche en plateau*, which can be translated as a shallow niche. It was about 1 cm long and sharply outlined. Although a diagnosis of malignancy was made on the basis of the radiographic examination, the patient was

given the benefit of medical treatment for a period of three weeks in order to exclude a cancer, because a consultant had been skeptical with regard to the diagnosis of malignancy. The films following this period of medical treatment failed to show any changes in the region of the niche. At operation the stomach and duodenum were inspected and palpated but nothing abnormal was found. A gastrectomy was performed by Professor Gosset. On gross examination of the entire lesser curvature of the specimen, neither an ulceration nor an induration could be detected. Microscopic study, however, by Dr. Ivan Bertrand of serial sections from 6 to 8 cm long of the entire pyloric and prepyloric region disclosed a diffuse gastritis of an atrophic and in places of an erosive type. In one of the sections close to the lesser curvature a slightly depressed area 1 cm in length was found which presented the changes characteristic of malignancy. A detailed description of these changes was submitted with the report.

#### Association of Pulmonary Abscess and Tuberculosis

Prof. F. Bezançon and his associates at the March 8 meeting of the Académie de médecine reported thirteen recent cases of active tuberculosis in patients suffering from pulmonary abscess formation. The object of the authors was to direct attention to cases in which the positive result of the routine search for tubercle bacilli by the smear, culture and animal inoculation methods is the only evidence of the association of the two pathologic conditions as compared to severe forms of pulmonary tuberculosis in which the occurrence of abscess formation due to nontuberculous organisms is a coincidence. The tuberculosis may develop at the site of the abscess at the time of formation of the latter or it may appear relatively late following prolonged suppuration and be present at some distance from the abscess on the same or opposite side of the body. The routine use of radiography in different positions reveals latent tuberculous lesions which are not to be found in the ordinary dorsal and frontal views. Tubercle bacilli are to be found in abscess of the lung even when gross and microscopic evidence of tuberculosis is not present. An associated tuberculosis is most frequently found either during the acute stage of a pulmonary abscess or close to the scar which represents a healed suppurative focus. When tuberculosis develops at a late period of abscess formation the question arises whether the lung, modified by the sclerotic changes incident to the healing of the abscess, had not lost its power of resistance and thus favored localization of the tubercle bacillus. The authors pointed out that it is important clinically to distinguish the two types of tuberculosis in cases of pulmonary abscess. The mere presence of tubercle bacilli in cases of the pulmonary abscess does not serve as a contraindication to operative intervention, whereas active tuberculosis associated with a pulmonary abscess is a contraindication to operation.

#### Medical Examination of Chauffeurs

Reference was made in previous letters to the report of a commission appointed by the Académie de médecine of Paris on the extension of the obligatory medical examination to all drivers of passenger cars. An existing law already covers chauffeurs of motor trucks, busses and electrically driven locomotives. The discussion of Professors Claude and Guillaum was cited in the Paris letter of February 12 (*THE JOURNAL*, March 12, p. 825). At the March 8 meeting additional points were brought out during a continuation of the discussion. Dr. Fredet said that one cannot deny that certain physical and mental defects of chauffeurs constitute a danger for the public. However, to insist on a complete obligatory medical examination for every one who is to be granted a driving license would give rise to far more work than can be estimated at first glance. This had already been pointed out by Professor Claude. The number of accidents due to road conditions and

mechanical defects are decreasing every year whereas the opposite is true of the human factor. The majority of accidents at the present time are the result of neglect to comply with the regulations as to speed, careful approach to street and railroad crossings and disregard of traffic lights. A compulsory medical examination would be of aid only in decreasing the number of accidents due to the last named factor, which in many cases is the result of color blindness. According to statistics, at least 5 per cent of all males suffer from color blindness. This gives one an idea of the number of chauffeurs, who cannot distinguish the color of signal lights, especially toward evening or during a fog in a large city. To reduce accidents due to color blindness to a minimum the speaker suggested that a single color be employed to indicate Go and two colors to indicate Stop. The color blind chauffeur would then know, when he saw two colors, no matter which, that this indicated Stop.

Another criticism of the present signal system in Paris which exists also in many other large cities, is that the yellow light which flashes between the red and the green is of such short duration that many pedestrians are caught on the street because they began to cross during a stop signal for automobiles but were unable to reach the other curb before the green light again functioned. In some cities a special light is used to indicate the interval during which pedestrians can cross a street.

In continuing the discussion Dr. Strohl said that accidents occurred even though a strict medical examination had been made. He cited the case of a locomotive engineer who had undergone such an examination before being employed in that capacity. Following his acceptance he had several attacks of epilepsy from which he had apparently never suffered before. Of 26,654 accidents from 1930 to 1932 inclusive in ten departments (counties), only seventy-five were the result of a mental or physical defect.

At the conclusion of the discussion, the report of the committee to recommend obligatory examination of all drivers of passenger cars was unanimously adopted.

#### BERLIN

(From Our Regular Correspondent)

March 14, 1938

#### Earlier Puberty of German Youth

In recent years numerous references to an acceleration in the puberal development of both sexes have appeared in the literature of various countries. Medical examinations in the German army have likewise disclosed a tendency toward more rapid growth. For example at about the turn of the century about 15 per cent of the men were less than 160 cm in height whereas in the year 1935 only 7.5 per cent of the men were below this height. Similarly, around 1900 the height of 16 per cent of the men exceeded 180 cm and in 1935 54 per cent were above this height. Corresponding shifts have also taken place at the intermediate levels of height. Some German authors have adduced evidence which indicates that among the youth there has been a general increase not only in height and weight but in general bodily development as well. For example an increasingly large percentage of children are able to walk before the end of the first year in marked contrast with former times. Dentition both primary and secondary also appears to begin earlier in life. Moreover the time at which boys' voices break has been advanced from one to two years. In Westphalia the onset of puberty was observed in the year 1933 to occur about one and a half years earlier than in 1914. According to investigations made in the year 1913 50 per cent of girls began to menstruate between the fourteenth and sixteenth years, only 13 per cent between the eleventh and the thirteenth years and 27 per cent between the seventeenth and nineteenth years.

The most recent group survey of pubescence was made by Dr Hans Oster, senior municipal medical counselor of Nuremberg, who reports his observations in the *Oeffentlicher Gesundheitsdienst*. Oster's material consisted of 15,000 children. Of 8,000 girls 12.3 per cent had menstruated before they were 12 years of age, 32.2 per cent before the age of 13, 59.1 per cent before the age of 14. All the Nuremberg girls had begun to menstruate before reaching the age of 17. It may therefore be said that by and large girls mature on an average from one to one and one-half years earlier than they did in the last years of the prewar period. Among the 6,000 boys studied, breaking of the voice, appearance of other secondary sex characteristics and certain behavior traits were evaluated as signs of puberty. As among the girls, there was a tendency toward earlier prepubescence. On the basis of older data the average time of onset of puberty in boys had been placed between the fourteenth and sixteenth years. Oster found that the earliest established pubescence in the boys of his material occurred between the ages of 11 and 12, more than one third of the boys had become pubescent before they had reached the age of 13, nearly three fourths before the age of 14 and more than four fifths before the age of 15. So it may be said that the onset of male puberty has been advanced about one and one-half years. As to whether this earlier maturation of the youth should be regarded as a favorable or unfavorable phenomenon, the present state of knowledge does not permit a conclusion.

#### Alcohol and Safe Driving

Professor Sachsenberg has conducted a series of new blood tests at Dresden which bear on the problem of alcohol and safe driving. A summary of his observations follows. In Germany an alcohol value of 1.5 per thousand in the blood is generally considered proof that the person is under no circumstances in condition to drive. But in Norway, for example, the corresponding alcohol content is fixed at 0.5 per thousand. At the Psychotechnic Institute of the College of Technology, Dresden, the author, in collaboration with engineers, psychologists and physicians, attempted to determine how great an alcohol content of the blood would produce physical impairment incompatible with the safe direction of a motor vehicle. Such an impairment was assumed if the driver in question while under the influence of alcohol was observed to drive more recklessly than 90 per cent of all normal drivers. A large group of automobile drivers and nondrivers as well volunteered for participation in the driving tests and blood examinations. In the accompanying table are set forth the percentages of persons judged incapable of driving safely after partaking of alcohol, and the corresponding alcohol values of the blood which rendered them unfit.

Alcohol Content of Blood Per 1 000	Drivers Incapacitated Per Cent
0.2	20
0.4	40
0.5	49
	(About 2½ small bottles of beer)
0.6	58
0.7	66
0.8	75
0.9	80.5
1.0	87.5
1.1	90
1.2	93
1.3	96
1.4 and over	100
	(About 2 bottles of moderately heavy Rhine wine)

According to these data, one half of all drivers are incapable of safe driving after imbibing from two to three small bottles of beer. And after finishing two bottles of moderately heavy Rhine wine scarcely any one can be responsible for the guidance of a motor vehicle. There are exceptions, of course, especially at the level of a 1 per thousand alcohol content in

the blood, but these can be carefully verified by psychotechnic examination methods. Broadly speaking, one can conclude on the basis of these experiments that drivers should be warned against ingestion of even trifling amounts of alcohol before beginning a trip.

#### Prof Max Neisser Is Dead

Prof Dr Max Neisser, for many years professor of hygiene and bacteriology at Frankfurt on the Main, died there, aged 69. He was particularly well known for his bacteriologic work on the differential diagnosis of the diphtheria bacillus and on staphylococci. The phenomenon of deviation of the complement (Neisser-Wechsberg phenomenon) bears his name, as does a complement binding reaction for biologic differentiation of proteins (Neisser-Sachs method). He also made valuable contributions to knowledge of the mutation of bacilli.

#### ITALY

(From Our Regular Correspondent)

March 15, 1938

#### Uniform Medical Fees

The head of the government has issued a decree which establishes a nationally uniform scale of medical honorariums. The amounts stipulated represent the minimal fees deemed compatible with professional dignity and no practitioner may ask less for his services unless his client is the father of a family who has five or more dependent children and who accordingly, is entitled to a 20 per cent reduction. The scale for professional visits to a patient's residence are as follows: first call, 20 lire, successive calls, 15 lire each, emergency call, day 25 lire, night 40 lire, consultation at patient's home, 30 lire for the attending physician, 60 lire for the consultant. Corresponding rates are fixed for surgical, obstetric and gynecologic services. Another decree soon to be issued will regulate the honorariums of specializing physicians.

#### Nomenclature of Medical Institutions and Offices

The minister of the interior has issued regulations to end the commercial exploitation (in advertising and so on) of medical institutions, offices and the like. The new law stipulates that the terms "clínica" and "políclínico" may be applied only to institutions connected with the university medical schools, private institutions of a medical nature should be styled "case di cura" (nursing homes) or "case di salute" (sanatoriums). The term "istituto" can now be applied only to a center of many coordinated activities the aim of which is predominantly scientific, cultural or educational, it must not be applied to case di cura or to mere medical offices. The term "studio" (laboratory) must be applied only to premises dedicated to clinical research studies and implies the presence of proper equipment for laboratory examination. The term "gabinetto" (office), since it implies merely premises equipped for ordinary clinical examination and treatment of patients, may be applied to the office of a general practitioner. The term "poliambulanza" (general or municipal outpatient infirmary) must be restricted to premises given over to more specialized procedures.

#### The Bulgarian Therapy of Parkinsonism

Professor Gandellini of Pavia recently reported to the medical society on the use of Bulgarian therapy in cephalic parkinsonism. The author studied the Buscaino reactions of 104 persons. In the more severe forms, those characterized by hyperemia and hypertonia, the precipitate was usually grayish. Other reactions in order of frequency were brown and black. In half of the moderately severe cases the precipitate was gray. After the Bulgarian therapy was begun not only were the neurologic symptoms improved but modifications were observed in the Buscaino reaction as well, cases in which dark precipitates had been elicited at previous tests tended to give lighter or clear reactions.

The author also studied the blood pictures in ninety cases of parkinsonism which later underwent Bulgarian treatment. Tests of capillary blood, venous blood and medulla osseum were the three criteria applied. In the capillary blood prior to treatment, certain phenomena were observed: general abnormal increase in globular values, an almost normal proportion of leukocytes and blood plates, a slight reticulosis, plain deviation of Arneth's formula frequently in combination with neutrophilia and lymphopenia, discrete eosinophilia. Some time after the beginning of treatment (the maximal period of observation was three years) the author noted that the globular values tended to become stationary and the white globules tended to diminish, there was also a reduction in the number of neutrophils and monocytes, and an increase in lymphocytes and eosinophils. The author considers that the hematologic characteristics of encephalitic parkinsonism justify the supposition of an automatic, humoral regulation of the blood count. The Bulgarian therapy produces clinical amelioration of the neurologic symptoms and also brings with it favorable changes in the blood picture.

### Congress of Obstetricians and Gynecologists

The Societa Italiana di ostetricia e ginecologia held its thirty-fourth national convention in Rome. Professor Artom of Sant'Agnes clinic was chairman of the executive committee. Professor Jayle represented the Societe française de gynecologie and Professor Stamatev of the obstetric clinic, Sofia, represented the gynecologists of Bulgaria.

Professor Gafami, director of the Clinica di Roma, called attention to the need for a better coordination of extant maternal and infant welfare agencies. A hygienic program should be worked out that would assure adequate supervision and timely care of the mother during pregnancy, parturition and the puerperium, as well as care of the newborn infant. Such a program would go far to reduce morbidity and mortality of both mothers and babies. It cannot be realized, however, until the medical schools and the hospitals furnish better training in obstetrics and gynecology. The author advocates the establishment of special residence units for prospective obstetricians, the training of the students should be better coordinated with that of the resident students at the pediatric clinics. Compulsory insurance of the gravid woman should be extended throughout the population and eventually become totalitarian. Likewise a closer collaboration is to be encouraged between gynecologists and pediatricians in the study of diseases of the prepuberal female genitalia as the present lack of understanding of these disorders often conduces to impaired health of the adult woman.

The first formal report was submitted by Professor Cova of Turin, his subject was nutrition of the pregnant woman. Methodical studies of the increase in body weight of pregnant women at the Turin clinic demonstrated that in the late months of gestation primigravidae experience a mean gain of 50 Gm per diem plurigravidae a mean gain of 70 Gm per diem. Basal metabolism is always at least 20 per cent and sometimes as much as 50 per cent above normal. It is estimated that an expectant mother will require a daily intake of 3000 calories. Any study of the qualitative physiologic equilibrium must take into account above all the presence in the nutriment of essential amino acids, vitamins, phosphates and calcium. These salts are needed for the development of the fetal skeleton. Vitamin A deficiency easily leads to abortion or premature parturition. Lack of vitamins of the B group inhibits intra-uterine fetation. Vitamin C the antiscorbutic controls the metabolism of the osseous skeleton and preservation of the teeth and besides stimulates the production of blood platelets. It acts indirectly on the coagulative powers of the blood and this may be of utmost importance during the postpartum period. Vitamin D the antirachitic vitamin is of importance because of its value in calcification. Vitamin E the antisterility vitamin exerts an influence on the continuation of pregnancy.

In the discussion of Cova's paper, Professor Fori, Milan physiologist, said that in general the evaluation of the protein requisites of the gravida may be exaggerated. He estimated that about 20 Gm was sufficient for a normal gravida.

### Courses in Puericulture

The minister of public instruction has decreed that all girls pupils in secondary schools shall be offered courses in the care of infants and in puericulture. This program is a pendant to the present compulsory military training of boys of secondary school age. The purpose of the new courses will be to familiarize girls with (1) the duties of the woman in the upbringing of the family and in the prevention of sickness (since the health of a people depends on how well these duties are performed), (2) hygiene as the source of individual and national health and (3) hygiene of the nursing and training of the child. The courses will be conducted by professors or the staffs of various centers for maternal and child welfare. In addition to the classroom lessons, opportunity will be offered for practical training.

### Alessandro Lustig Is Dead

Senator Alessandro Lustig, professor emeritus of general pathology in the University of Florence, died unexpectedly at Marina di Pietrasanta. Lustig held doctoral degrees from both Vienna and Turin and he was a pupil of Brücke and of Bizzozero. While quite young, he won a competitive examination for the chair of general pathology at Cagliari. From there he was called to Florence, where he taught for more than forty years and founded a school that has given more than twenty eminent men to the scientific institutions of Italy. A volunteer in the World War, he saw front line service as colonel in the medical corps. It was Lustig who organized the antagas defense in the Italian army. Following his retirement from teaching he continued to head a center at Florence for research on defense against chemical warfare.

Lustig's scientific activity was prodigious. Of far reaching importance were his morphologic-bacteriologic investigations of cholerigenous *Vibrio* and of anticholera and antityphoid inoculation. In collaboration with Galleotti he demonstrated the presence of Flemming's intermediary body in carcinoma cells. In the field of bubonic plague research he demonstrated by experiments with human and animal subjects that the nucleic protein of *Pasteurella pestis* is an excellent vaccinal medium. As chairman of a ministerial commission for the study of pellagra, Lustig worked out a program of school hygiene and prophylaxis of this disease, which at that time was endemic in certain regions of Italy. Lustig went to India at the invitation of the British government on the occasion of an epidemic of bubonic plague there. He also fulfilled similar missions to Brazil and Argentina, where he studied malaria, leprosy and undulant fever.

Lustig was for many years editor of the scientific journal *Lo sperimentale* which came to be devoted to the literature of biology and which gained world wide recognition as an *Archiv di biologia normale e patologica*.

## Marriages

WILLIAM EMMETT DENMAN JR. Greenwood Miss to Miss Sal Whitaker of Greenville in February.

ISAAC HAYNE Congaree S. C. to Miss Sue Stevenson of Columbia in Denmark February 8.

ROY O. HAWTHORNE to Miss Louise P. Bidwell both of Kankakee Ill. in February.

HARRY H. JENKINS to Miss Marina Mayo both of Knoxville Tenn. February 19.

BLANCHE HOPNER MILDOD to Mr. A. L. Each both of Pico Calif. recently.

## Deaths

Claude Granville Crane, Brooklyn, Columbia University College of Physicians and Surgeons, New York, 1900, member of the Medical Society of the State of New York, and American Laryngological, Rhinological and Otological Society, in addition to serving on various committees he was secretary of the Medical Society of the County of Kings, 1911-1913, fellow of the American College of Surgeons, on the staff of the Brooklyn Hospital and the Brooklyn Eye and Ear Hospital, aged 61, died, February 27

James Robert Dykes Ⓢ Surg, Lieut Commander, U S Navy, retired, Marshallville, Ga, University of Virginia Department of Medicine, Charlottesville, 1897, entered the navy in 1903 and retired in 1915 for incapacity resulting from an incident of the service, formerly health officer of Grady County and Thomas County, aged 64, died, February 20, of heart disease

William W York, Ashdown, Ark, Memphis (Tenn) Hospital Medical College, 1901, member of the Arkansas Medical Society, past president of the Little River County Medical Society and the State Medical Board of the Arkansas Medical Society, aged 61, died, February 3 in a hospital at Texarkana of injuries received in an automobile accident

Harold Bertram Hedrick Ⓢ Kansas City, Mo, University Medical College of Kansas City, 1913, member of the American Academy of Ophthalmology and Oto-Laryngology served during the World War, aged 47, on the staffs of the Trinity Lutheran, Kansas City General, St Luke's and Mercy hospitals and St Mary's Hospital, where he died, February 21, of cerebral hemorrhage

John Pierce De Witt Ⓢ Canton, Ohio, Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1895, member of the House of Delegates of the American Medical Association since 1923 fellow of the American College of Surgeons, on the staff of the Aultman Hospital, aged 67, died, March 29, of cerebral hemorrhage

Ezra T Goble Ⓢ Earlville, Ill, Rush Medical College, Chicago, 1874, an Affiliate Fellow of the American Medical Association, past president of the La Salle County Medical Society, for many years member and president of the school board, formerly mayor of Earlville and bank president, aged 87, died, February 23, of chronic myocarditis

William Alfred Buice, Chelsea, Okla, University of Oklahoma School of Medicine, Oklahoma City 1930, formerly director of laboratories at the Eastern State Hospital Medical Lake, Wash, past president of the Washington State Public Health Association, aged 47, died, February 3, in Santa Monica, Calif, of coronary thrombosis

William Allen Prouty, Burlington, Wis, Rush Medical College, Chicago, 1893 member of the State Medical Society of Wisconsin, served during the World War, for many years county physician, at one time city health officer of Burlington formerly on the staff of the Memorial Hospital, aged 75, died, February 5, of pylonephritis

William Hazen Freeman, Ashland, N Y, Chicago Homeopathic Medical College 1900, member of the Medical Society of the State of New York formerly associate professor of materia medica at the New York Homeopathic Medical College and Flower Hospital, New York, aged 67, died, February 27, of coronary thrombosis

Dottery Holden Ward, Bay St Louis Miss, University of Tennessee College of Medicine Memphis 1914 member of the Mississippi State Medical Association aged 55, died February 5, in a hospital at Gulfport of burns received when a gasoline heater in his office exploded

Joseph Gugenberger, Worcester, Mass, Long Island College Hospital Brooklyn, 1932, member of the Massachusetts Medical Society served during the World War, aged 44 on the staff of the Worcester City Hospital, where he died February 28 of lobar pneumonia

Harry E Wilkins, Petersburg Ill, College of Physicians and Surgeons Keokuk, Iowa, 1893, member of the Illinois State Medical Society, formerly mayor, county coroner and member of the local board of education, aged 72, died February 22 of myocarditis

Abram Miller Ⓢ Kansas City, Mo, Washington University School of Medicine St Louis 1895, at one time professor of materia medica University Medical College of Kansas City on the staff of St Joseph Hospital, aged 63, died February 12 of coronary occlusion

J W Kenward Shaw, New Iberia, La, College of Physicians and Surgeons, Baltimore, 1887, member of the Louisiana State Medical Society, formerly parish coroner and member of the school board, aged 73, died, February 13 of angina pectoris

Pringle George Tait Ⓢ Toledo, Ohio, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900, served during the World War aged 62, on the staff of St Vincent's Hospital, where he died, February 16, of bronchiectasis

Archibald John Valteau, Morrisville, Vt, Queen's University Faculty of Medicine, Kingston Ont, Canada, 1891, member of the Vermont State Medical Society, aged 71, on the staff of the Copley Hospital where he died, February 18

Jefferson Gillum Smith, McDonough, Ga, Atlanta College of Physicians and Surgeons, 1899, member of the Medical Association of Georgia, past president of the Henry County Medical Society, aged 61, died February 5, of cancer of the bone

Frank J Spilman Ⓢ Connersville, Ind, Medical College of Ohio, Cincinnati, 1897, past president of the Fayette-Franklin County Medical Society, aged 65, died, February 7, in a hospital at St Petersburg, Fla, of intestinal hemorrhage

Harry Stearns Platts, Troy, N H, Dartmouth Medical School, Hanover, 1898, member of the New Hampshire Medical Society, served during the World War, aged 61, died suddenly, January 7, of coronary thrombosis

Nicholas J Nye, McHenry, Ill, Memphis (Tenn) Hospital Medical College 1899 member of the Illinois State Medical Society, aged 66 died, February 16, in Miami, Fla, of coronary occlusion and arteriosclerosis

Harry Raymond Thomas, Dallas, Texas, Tulane University of Louisiana Medical Department, New Orleans 1900, formerly member of the city board of health, aged 59, died in February of coronary thrombosis

Albert G Meyer, San Francisco, University of California Medical Department, San Francisco, 1890 aged 68, died, January 1, in the San Francisco Hospital of diverticulitis of the sigmoid and pyelophlebitis

Casimir Francis Pawlicki, San Francisco, University of California Medical Department, San Francisco, 1894, aged 65, died January 4, in the French Hospital of chronic myocarditis and arteriosclerosis

B R Bradford, Linden Ala, Medical College of Alabama, Mobile 1904, member of the Medical Association of the State of Alabama, aged 55, died, February 21, of bronchopneumonia

Frank Coleman, Hamilton, Ont, Canada, University of Toronto Faculty of Medicine, Toronto, Ont, 1894 aged 70, died, February 8 in the Hamilton General Hospital

William Benjamin Brooks, Mohawk, N Y, University and Bellevue Hospital Medical College, New York, 1901, aged 62 died, February 3, of cerebral hemorrhage

Horace A Reddish, St Louis, St Louis College of Physicians and Surgeons 1908, aged 51, died, February 5, in New Orleans of hypertensive heart disease

Dominique Francis Gaspard, Montreal, Que, Canada, Laval University Medical Faculty, Montreal, 1918, aged 53, died February 6 in a local hospital

Samuel R Turner, Michigan Center Mich, University of Louisville (Ky) Medical Department 1888, aged 79, died, February 7, of cerebral hemorrhage

Ethan St Clair Milford, Hayward, Calif, Hering Medical College Chicago, 1901, aged 66, died, January 19, of myocarditis and cerebral thrombosis

Manly L Taylor, Columbus, Ga, Leonard Medical School, Raleigh N C 1906, aged 56 died, February 6, of cardiac insufficiency and nephritis

John Arthur Jones, Springfield, Ohio, Jefferson Medical College of Philadelphia, 1890, aged 75, died, January 31, in Dayton of myocarditis

Louis G E Boucher, St Valerien Que, Canada, Victoria University Medical Department, Coburg Ont 1879 aged 85 died February 4

Calvin Eugene Camp, San Pablo Calif, Cooper Medical College San Francisco, 1885, aged 71, died, January 3, of pneumonia

Walter S Terhune, Brooklyn New York Homeopathic Medical College, 1877, aged 84, died, February 10, of myocarditis

Harry Ballou Bryson, Los Angeles, Cleveland Medical College 1893 aged 76 died January 30 of myocarditis

Annie Wightman Hunt, Providence R I, College of Physicians and Surgeons Boston, 1884 died January 23



## Correspondence

### STATEMENT ABOUT INFANTILE PARALYSIS

To the Editor —There is at present no generally accepted preventive of poliomyelitis, nor any effective remedy in the acute stage, other than absolute rest. Complete rest is so important in the early days of this inflammation of the central nervous system that it is usually far better to leave the child in bed at home when the disease is first suspected than to move him any appreciable distance to a hospital, particularly if the move is a fatiguing one.

The early manifestations on which the disease can be suspected are fever, headache, irritability, possibly vomiting, perhaps a tremor in the hands which may cause the patient to spill his glass of water, and in particular a tender rigid spine, which will make it impossible for the child to touch his chin to his knee.

When any considerable proportion of these manifestations are present, a doctor should be called to examine the patient and to draw off and examine some of the spinal fluid to confirm the diagnosis and perhaps relieve the headache, but otherwise the child should be disturbed and moved literally as little as possible. When this is done, three out of four children in whom the disease has progressed to this degree will nevertheless escape the paralysis entirely.<sup>1</sup>

Should a patient acquire any paralysis, particularly involving an extremity, a competent orthopedic doctor should be consulted at once, so that the affected part can be immobilized properly at the earliest moment. For even as early rest of the entire child helps to prevent paralysis, so early rest of a weakened muscle helps to prevent permanent crippling.

This statement has been endorsed by Josephine B. Neal, Sidney David Kramer, William H. Park, Thomas Parran, James P. Leake and the Medical Board of the Willard Parker Hospital.

PHILIP M. STIMSON, M.D., New York

### NOMENCLATURE OF THE VITAMIN B COMPLEX

To the Editor —With gratitude one reads the comprehensive and authoritative article by Dr. Nelson (The Components of the Vitamin B Complex, *THE JOURNAL*, February 26, p. 645), but because the article is authoritative it is doubly unfortunate that it should contain two inaccuracies logically followed by a definition of one of the components at variance with the definition as it occurs in the literature. There has been so much confusion in the nomenclature of this group and the group contains so many members that it is absolutely essential to fix one term and only one on each entity wherever possible if we are to avoid further confusion and to benefit from Dr. Nelson's authority.

In his paragraph on the filtrate factor he says: "In attempts to fractionate the whole vitamin B complex it has been found that if vitamin B<sub>1</sub> and riboflavin are first removed, further fractionation can be accomplished with fuller's earth. The fraction remaining after such adsorption is free from B<sub>6</sub> and has been designated the filtrate factor. This is not correct, as the only definition of the filtrate factor to be found in the literature is that laid down by Lepkovsky and Jukes (*J. Biol. Chem.* 114:109 [May] 1936), which has not been modified by any other workers who have adopted it. It is given in the title of their paper and reads: the filtrate factor (a water-soluble

vitamin belonging to the vitamin B complex and preventing a dietary dermatitis in chicks)." This definition is precise, supplying a name for what is believed to be a single chemical substance.

The second inaccurate statement is that "evidence is accumulating which indicates that a nutritional dermatosis in chicks may be closely related to human pellagra." Suggestive evidence that the two diseases are caused by lack of different factors from the diet was found by Jukes (*J. Biol. Chem.* 117:11 [Jan] 1937) and more recently decisive evidence has appeared (Dann, W. J., *Science* 86:616 [Dec 31] 1937; Dann, W. J., and Subba Row, Yellapragada, *J. Nutrition* to be published) showing that the filtrate factor and the P-P factor are separate chemical entities; the chick dermatosis is not therefore closely related to human pellagra.

Following these two inaccurate statements, Dr. Nelson has logically stated in his definition that the filtrate factor "contains chick dermatosis, blacktongue and P-P factors." Thus he is now extending the definition of the filtrate factor to cover a second factor in addition to that described in the definition herebefore universally accepted by writers on this subject.

W. J. DANN, PH.D., Durham, N. C.

### PRESENT STATUS OF NICOTINIC ACID IN THE TREATMENT OF PELLAGRA

To the Editor —The enthusiastic reception of the report by Elvehjem and his associates on the efficacy of nicotinic acid and its compounds in curing blacktongue and its immediate application to the problem of human pellagra are natural and commendable, but there is reason to believe that this discovery may be exploited before adequate knowledge of essential facts is available.

It would seem justifiable to call attention to paragraphs 7 and 8 of the summary and conclusions of the paper by Spies, Cooper and Blankenhorn published in *THE JOURNAL* February 26. They emphasize that dosage is yet uncertain and that, while nicotinic acid is potent against the mucous membrane lesions of pellagra, further study is necessary before it can be considered a specific for the whole pellagra syndrome.

Clinical experience in widely separate localities indicates that nicotinic acid causes rapid, even spectacular, improvement and remission in pellagrins in the presence of severe dietary inadequacy. Dosage has varied much and oral and parenteral administration have been effective. Treatment periods have been as short as three days and as long as four months. In general the results have been comparable with those produced by large doses of liver extract except that cutaneous lesions have healed more slowly. The effects on nervous manifestations of the disease are still uncertain.

The permanence of cure produced by nicotinic acid will doubtless depend on the ability of patients to secure an adequate diet or a constant ration of the drug to supplement inadequate diet. Even so it is questionable whether any one supplementary dietary factor will maintain health indefinitely. Spies, Cooper and Blankenhorn observed a relapse after appropriate cure (case 6) and I have seen a fulminating, febrile relapse two weeks after complete remission secured with nicotinic acid. In both instances the diet was seriously inadequate.

While present evidence is strongly in favor of the assumption that nicotinic acid is the P-P factor of Goldberg, the total number of patients treated is small, probably not exceeding fifty, and the time since treatment was started is short. It is most desirable that minimum effective dosage for cure, maintenance and prevention be determined by the controlled observations of experienced investigators and that the indiscriminate use of nicotinic acid be strongly discouraged until this information is available.

V. P. SIDENSTICKE, M.D., Augusta, Ga.

<sup>1</sup> This proportion varies in different epidemics. In the large epidemic of 1931 approximately 82 per cent of the patients admitted to the Willard Parker Hospital in the preparalytic stage or five out of six escaped the paralysis. In other and smaller epidemics the figures have been as low as two out of three.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### CORONARY AND CEREBRAL EMBOLISM AND THROMBOSIS

*To the Editor*—How can a blood clot in a plantar vein travel up and plug a coronary artery or a cerebral artery? The foramen ovale was closed. Has this ever been done experimentally on animals? If so please cite. Just how does this clot pass the pulmonary network? Is a coronary thrombus or embolus the same and caused the same way?

M D Maryland

**ANSWER**—It is impossible for a blood clot in a systemic vein to plug a coronary artery or a cerebral artery unless there is a septal defect in the heart. If there is a septal defect and a systemic venous thrombus passes through it, the condition is called paradoxical embolism.

Coronary embolism is rare, in contrast to cerebral embolism.

Coronary occlusion occurs in the great majority of cases either gradually without the production of infarction or suddenly by thrombosis (only very rarely by embolism) with the production as a rule of myocardial infarction. The thrombus is laid down in situ in the coronary artery, almost always in a very narrow lumen and superimposed on extensive atherosclerotic change in the wall of the artery. The exact mechanism of the production of coronary thrombosis is, however, still a mystery.

### TREATMENT OF PREEPITHELIOMATOUS KERATOSES WITH ROENTGEN RAY

*To the Editor*—What is the technic and dosage for treating the preepitheliomatous keratoses with x-rays in terms of milliamperes and time as I do not have a roentgenometer? Is this method as satisfactory as radium treatment?

M D Kansas

**ANSWER**—Treatment of preepitheliomatous keratoses can be carried out as successfully with roentgen rays as with radium and in much less time.

The indirect measurement of the dosage is based on four factors—milliamperes, voltage, distance from the target and time. The term skin unit is understood to be the amount of irradiation necessary to produce erythema or epilation. Thus the dosage has been usually given, until rather recently, in terms of skin units. Years ago MacKee determined the factors involved and demonstrated how the factors could be varied to obtain the erythema dose. The following factors were the basis for computation of the dosage: 2 milliamperes, a spark gap of 6 inches or its equivalent in voltage, a distance of 8 inches from the target and an exposure of three minutes. The dosage for the keratoses depends on the thickness of lesion and whether or not it has become an epithelioma. If the lesion is thick, maceration with diluted solution of sodium hypochlorite and removal of the keratosis would permit of examination of its base to determine whether malignancy has developed. Unless one has had experience in the diagnosis and treatment of such lesions, undertreatment rather than overtreatment would be advisable. One skin unit to individual lesions and observation for at least a month before repetition would be safe.

Freezing the lesion with carbon dioxide snow or, if this is not available, with dry ice is also very effective. In skilled hands the use of the fulgurating spark is highly satisfactory.

### EFFECTS OF COSMETICS ON SKIN

*To the Editor*—Has any research work been done on face powder and rouge as regards its effect on the skin? A number of my patients have had trouble from cosmetics.

S CHASE TUCKER M D Peabody Mass

**ANSWER**—Most of the investigative work on the effects of face powder and rouge on the skin has been done in the field of allergy. Certain powders, no matter how pure and mild in their effects on most skins produce an untoward reaction in the person whose skin is susceptible to irritation from one or more ingredients in the powder. Certain ingredients are more or less allergenic. Among them may be mentioned metallic substances such as white lead, bismuth, mercury, a zinc compound, also aniline dyes and some perfumes. Heliotropin and orris root seem to be the more irritating of the perfume preparations. Powders containing starches, calcium carbonate, gypsum and barium sulfate may be irritating. Orris root was a great offender many years ago but is rarely used in modern

powder manufacturing. Poucher reports zinc stearate and zinc oxide as irritating elements to the skin. Face powders should be free from gritty, sharp particles and all impurities. Rouges should contain no irritating dyes. Some women are sensitive to colors derived from eosin.

One of the most important elements in preventing irritation from face powders is the matter of thorough cleansing at bedtime. This is best done with a cleansing cream followed by soap and water. Leaving the powder in the pores without thorough cleansing is apt to produce inflammation or irritation which will not occur if the powder is removed properly.

### INTERMENSTRUAL DISCHARGE

*To the Editor*—A white woman, aged 29 until about nineteen months ago had a normal menstrual period occurring every twenty-eight days and lasting five or six days. Nineteen months ago she had an induced abortion with no complications. Since that time she has had a black discharge beginning several days before the regular menstrual period. This has increased until for the past four or five months it has begun exactly two weeks before the regular day of onset of the menstrual period occurring on any straining and especially during coitus. This flow is not constant during the two weeks and is of small amount. The amount increases during coitus. There is no pain during this time but the patient is nervous and at times has a temperature around 99.8 F. The regular menstrual period still occurs every twenty-eight days but lasts only three or possibly four days. The flow is fairly normal during this time. The cervix is apparently normal. I would appreciate any suggestions you have to offer in this case.

M D Texas

**ANSWER**—It is possible, although not highly probable, that there may be a small placental mass in the uterus. Nearly always, however, when such tissue is present, there is more or less persistent bleeding and not periodic bleeding such as in this case. A more likely cause for the abnormal bleeding is the condition known as mittelschmerz, or intermenstrual pain. In typical instances of this kind, pain low down on one side of the abdomen occurs in the midperiod between flows. This pain may recur on the same or the opposite side. In some cases bleeding accompanies the pain and in other instances there is intermenstrual bleeding and no pain. The cause of the pain and the bleeding is ovulation. Usually no treatment need be instituted in these cases, especially because there is no satisfactory way to stop the pain or the bleeding. When the pain is severe, however, drugs must be prescribed. Since in this case the disturbance did not begin until an induced abortion was performed, because the flow lasts almost two weeks and because the patient has an elevated temperature during the time of the abnormal flow it is advisable to perform a curettage in the hope that a local cause may be found and removed. This should preferably be done when the patient does not have fever, namely, in the first half of the intermenstrual period.

### CHROMIUM IN DRINKING WATER

*To the Editor*—Recently one of our county health commissioners directed attention to a proprietary preparation which was being added to the water supply of a school for the purpose of preventing corrosion of piping. Examination of the product indicated that it was a solution of sodium silicate and a chromate. The laboratories reported the specific gravity to be 1.41, total solids 63.6 Gm per hundred cubic centimeters, silica SiO<sub>2</sub> 29 per cent by weight, chromium in terms of sodium chromate Na<sub>2</sub>CrO<sub>4</sub> 0.44 per cent by weight. The distributors of this product state that their prescribed dosage is 1 quart to 5,000 gallons of water. This is equivalent to 0.31 part per million of sodium chromate Na<sub>2</sub>CrO<sub>4</sub> or to 0.10 part per million of chromium Cr. It is understood that it is added either to the cold water supply or to the hot water supply or to both. Information at hand indicates that several schools and certain commercial interests have been using the product and that its use may tend to extend. I have been unable to locate any reference as to the effect of drinking water containing small amounts of chromium and would greatly appreciate your opinion as to whether you would consider either the intermittent or the continued drinking of water containing chromium to the extent of 0.3 part per million of sodium chromate might have any harmful physiologic effect and what limit should be set for the chromium content of drinking water.

WALTER H. HARTUNG M D Columbus Ohio

**ANSWER**—Chromate as here applied represents hexavalent chromium, but in the presence of water with any appreciable organic content and after a considerable interval of time, represented by hours, this hexavalent chromium may be changed over to a trivalent compound. Trivalent chromium is substantially nontoxic but the hexavalent compounds are much more toxic. The presence of excess chlorine in a water supply tends to inhibit the chemical change mentioned. Moreover, since the query refers to a school water supply the implication is that the elapsed time between chromium water treatment and water use might be much less than is true for a large city. In the case of inhaled chromates the upper limit of safety for extended exposures is somewhat arbitrarily fixed at 1 mg of chromates to 10 cubic meters of air, the latter figure approximating the quantity of air breathed by an adult during a work day. Under

the circumstances mentioned it appears that if a gallon of water should be consumed daily, approximately 1 mg of the chromate would be ingested. Probably this quantity would lead to no demonstrable physiologic abnormalities, but an unequivocal stand may not be taken.

At this time, compounds containing chromium are regarded as sensitizing agents. It is conceivable that chromium in small quantities might lead to dysfunction because of sensitization. It is more likely under other circumstances that workers sensitized through greater exposure connected with employment might respond through allergic manifestations to the minute traces mentioned, following ingestion or even in connection with bathing. It is the intent of this discussion not to condemn the practice mentioned in the query as wholly unwarranted but to point out the possibility of ill effects.

#### FATAL METHYL SALICYLATE POISONING

*To the Editor*—A white girl aged 15 months was first seen half an hour after ingestion of approximately 1 ounce (30 cc) of oil of wintergreen. The taking of the fluid was accidental the wintergreen having been used to rub on arthritic joints of an older person in the household. According to the family the child had vomited twice and the vomiting was followed by one convulsion before I was called. When I arrived, the child had cyanosis of both hands and feet but the face and head were pink. The child was in a coma. Since its jaws were so spastic that they could not be opened enough to introduce a small stomach tube, the child was given one fourth grain (0.016 Gm) of codeine and was rushed to the hospital immediately. The jaws were then pried open by a mouth gag and a small stomach tube was introduced and the stomach lavaged with a solution of sodium bicarbonate. The child never regained consciousness but had two more convulsions and died. I have been unable to find reports of such cases in the literature. Is this poisoning of frequent occurrence? Since oil of wintergreen is commonly used should not this form of poisoning be given more attention in the medical literature?

W L SHARP MD Anderson Ind

*ANSWER*—The oil of wintergreen was probably methyl salicylate, which is prepared synthetically and is official in the United States Pharmacopeia with a dose of 0.75 cc.

While fatal poisoning with methyl salicylate is not frequent, cases have been reported in which death resulted from the ingestion of 30 cc by an adult. Others report severe poisoning from 30 cc but with ultimate recovery. The usual symptoms are severe abdominal pain, vomiting, convulsions, coma and suppression of the urine. More frequently the use of methyl salicylate as an internal therapeutic agent to replace the other salicylates has been followed by gastric distress with abdominal cramps and evidence of kidney irritation.

Since methyl salicylate has caused death in relatively small amounts, and even in therapeutic amounts may give rise to severe intoxication, its use should be restricted to external applications and its internal use discouraged.

#### DIMPLING OF FINGERS IN DEHYDRATION

*To the Editor*—Is dimpling of the anterior surface of the finger tips as a sign that dehydration is becoming dangerous worth adding to the innumerable signs? I have had occasion to note this sign for some thirty five years. I do not see it mentioned in French's book of differential diagnostic signs and symptoms. H B ATKENS MD Le Center Minn

*ANSWER*—Dehydration is always potentially dangerous. The sign mentioned is seen only in severe and precarious dehydration. It would be most unwise to rely on and wait for such dimpling of the skin before taking measures to combat dehydration, there are many other earlier and readily observable phenomena giving warning of inadequate fluid retention.

#### GASTRIC FISTULA AFTER REPAIR OF PERFORATED ULCER

*To the Editor*—In a case in which a large indurated and perforated gastric ulcer on the posterior wall of the lower third of the stomach is repaired without a gastro-enterostomy and a week later a gastric fistula develops what are the chances of this closing without a secondary operation? What medical treatment would be indicated?

MD Minnetota

*ANSWER*—A fistula following closure of a perforated gastric ulcer will almost invariably heal without further operation. The only deterrents are an unrecognized carcinomatous ulcer and occasionally a high grade obstruction resulting either from the closure or from spasm. The medical treatment indicated naturally includes the control of gastric acidity. This can be done in several ways. A Levine tube may be introduced into the jejunum for feeding and nothing given by mouth for a number of days. This gives the stomach complete rest and gastric secretion usually ceases during the starvation period. Another method is to put the patient on regular ulcer management seeing that the acidity is completely controlled either with

milk and cream or with milk and cream plus alkalis such as calcium carbonate, calcium phosphate or calcined magnesium. Erosion of the skin of the abdominal wall from the action of the stomach juices has frequently been bothersome, although not the serious problem encountered in duodenal fistulas. To overcome this erosion, a number of devices have recently been suggested, such as the local application of a liquid rubber solution dusting the area with fullers' earth, or the use of proteins like beef broth.

#### DANGERS FROM ARSENIC IN PSORIASIS

*To the Editor*—In a case of psoriasis involving the entire scalp and large areas on the body and extremities under treatment with solution of potassium arsenite the psoriatic lesions disappeared almost completely leaving but two or three small patches not greater than a centimeter on the body. Treatment was discontinued because of the toxic manifestations of the drug. The dermatitis reappeared in about four weeks and was cleared up again in about three weeks with the use of the same arsenical preparation. It has now been six or eight weeks since the dermatitis was cleared up for the second time and again it seems to be reappearing extensively. I should like to know whether it would be safe for me to resort to the same medication in the treatment of this condition and whether its long continued use would lead to severe if not permanent damage to the parenchyma of such organs as the liver and kidneys.

D P SCHULTZ MD Port Jervis, N Y

*ANSWER*—Long continued use of arsenic will lead to damage sooner or later, even if nothing more than pigmented areas on the skin and hyperkeratoses. A rest of at least six months should be given between courses of arsenic.

#### CONGENITAL SYPHILIS

*To the Editor*—A premature infant of seven months gestation weighing 3 pounds 4 ounces (1.475 Gm) with a four plus cord Wassermann reaction has survived nine days with no clinical symptoms of syphilis. His mother was not aware that she had syphilis. At a premarital check up a year ago both parents had negative blood Wassermann reactions. How soon should this infant begin having antisyphilitic treatment? His present weight is 3 pounds 1 ounce (1.390 Gm) and he is taking his feedings well by gavage. What drugs would be best in this case?

MD California

*ANSWER*—If the baby has congenital syphilis the mother has syphilis. The disease in the mother can usually be determined by a sensitive, properly done blood Wassermann or Kahn test. This should be done. If the baby has congenital syphilis, roentgenograms of the long bones will usually reveal pathognomonic evidences of the disease. A strongly positive cord Wassermann reaction probably means congenital syphilis in the large majority of instances. However, it seems to be generally agreed that antisyphilitic treatment should not be begun on such evidence alone. If the baby has congenital syphilis its blood will soon give a positive Wassermann or Kahn reaction. The test should be repeated certainly every two weeks until a positive reaction is obtained or until the baby is 4 months of age.

Treatment should be instituted as soon as the diagnosis is made. Sulfarsphenamine can be used, about 10 mg per kilogram of body weight, and slowly increased to 20 mg. It is important not to use large doses of either arsenic or bismuth compounds at the start. Bismuth compounds should be used in appropriate doses and in courses alternating with the arsenic. What is probably more important than particular drugs or dosage is that the treatment be continuous.

#### ACRIFLAVINE IN LETHARGIC ENCEPHALITIS

*To the Editor*—What is the opinion of the medical profession on acriflavine in lethargic encephalitis? The patient has been sick for fourteen months and little or no change has been noticed during the last six. Food and drugs are taken by mouth and there seems to be no further loss of weight. Any suggestions will be appreciated. MD Kentucky

*ANSWER*—Acriflavine is a dye which has been used in a few acute cases with alleged benefit. Little or no benefit has been reported in later cases. In the reliable reports by the Matheson commission (1932) one reads "The recommendations for acriflavine are apparently based on opinions rather than results."

#### PNEUMOPERITONEUM IN PULMONARY TUBERCULOSIS

*To the Editor*—Please tell me where to cure some detailed information on the technique of giving pneumoperitoneum in the treatment of pulmonary tuberculosis. ROBERT A STAFF MD Rutherford, N J

*ANSWER*—The technique, indications and dangers of pneumoperitoneum have been discussed in the following articles:

Vadja L. *Ztschr f Tuberk* 67:371 1933  
Panyau A. L. *Am Rev Tuberc* 29:603 (June) 1934  
Trimble H. G. and Wardrip I. H. *ibid* 30:111 (July) 1935  
Fremmel Frank *ibid* 30:444 (Oct) 1935

Medical Examinations and Licensure

Book Notices

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL April 30 page 1513

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS Parts I and II Examinations will be held in all centers where there is a Class A medical school and five or more candidates who wish to write the examination May 9 11 (limited to a few centers) June 20 22 and Sept 12 14 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Oral examinations for Group A and B applicants will be held at San Francisco June 13 14 Sec Dr C Guy Lane 416 Marlboro St Boston

AMERICAN BOARD OF INTERNAL MEDICINE Written examination will be held at various centers of the United States and Canada Oct 17 Final date for filing applications is Sept 1 Chairman Dr Walter L Biering 406 Sixth Ave Suite 1210 Des Moines Iowa

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY General oral clinical and pathological examinations for all candidates (Groups A and B) will be conducted in San Francisco June 13 14 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh (6)

AMERICAN BOARD OF OPHTHALMOLOGY San Francisco June 13 Washington D C Oct 8 Oklahoma City Nov 15 All applications should be filed immediately and case reports in duplicate must be filed not later than sixty days before the date of examination Sec Dr John Green 1/20 Washington Blvd St Louis Mo

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Chicago June 10 11 Sec Dr Fremont A Chandler 6 N Michigan Ave Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY San Francisco June 10 11 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

AMERICAN BOARD OF PEDIATRICS San Francisco June 12 Detroit October Rochester N Y November and Oklahoma City November 15 Sec Dr C A Aldrich 723 Elm St Winnetka Ill

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY San Francisco June 11 Sec Dr Walter Freeman 1028 Connecticut Ave NW Washington D C

AMERICAN BOARD OF RADIOLOGY San Francisco June 10 12 Sec Dr Byrl R Kirklm 102 110 Second Ave SW Rochester Minn

AMERICAN BOARD OF SURGERY Examination for candidates living along the northeastern and southeastern seaboard and western part of the United States latter part of May Sec Dr J S Rodman 225 S 15th St Philadelphia

AMERICAN BOARD OF UROLOGY San Francisco June 11 13 Sec Dr Gilbert J Thomas 1009 Nicollet Ave Minneapolis

Wisconsin January Examination

Dr Henry J Gramling, secretary, Wisconsin State Board of Medical Examiners, reports the oral, written and practical examination held at Madison, Jan 11-13, 1938 The examination covered 19 subjects and included 100 questions An average of 75 per cent was required to pass Fourteen candidates were examined, all of whom passed Eleven applicants were licensed by reciprocity after an oral examination The following schools were represented

School	PASSED	Year Grad	Per Cent
Northwestern University Medical School	(1937) 87	(1937)	*
School of Med of the Division of the Biological Sciences	(1937)		84
University of Illinois College of Medicine	(1937)		84
University of Minnesota Medical School	(1937)		87
New York University College of Medicine	(1936)		86
University of Oregon Medical School	(1936)		83
Temple University School of Medicine	(1936)		85
Medical College of Virginia	(1936)		82
Marquette University School of Medicine	(1937)		*
University of Wisconsin Medical School	(1936) 78	83 83	87
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Loyola University School of Medicine	(1934)		Illinois
Northwestern University Medical School	(1925)		Michigan
University of Illinois College of Medicine	(1930) (1934)		Illinois
Tufts College Medical School	(1915)		S Dakota
University of Michigan Medical School	(1935)		Michigan
Washington University School of Medicine	(1934)		Missouri
University of Pennsylvania School of Medicine	(1932)		Penna
Osteopath		Iowa Ohio Oklahoma	

Average grade not reported  
† Licensed to practice osteopathy and surgery

South Dakota January Report

The South Dakota State Board of Medical Examiners reports the written examination held at Pierre Jan 18-19, 1938 The examination covered 13 subjects and included 100 questions An average of 75 per cent was required to pass One candidate was examined and passed One physician was licensed by reciprocity The following schools were represented

School	PASSED	Year Grad	Per Cent
University of Minnesota Medical School	(1935)		90
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Cincinnati College of Medicine	(1932)		Ohio

Genital Abnormalities Hermaphroditism and Related Adrenal Diseases By Hugh Hampton Young M A M D Sc D Professor of Urology the Johns Hopkins University Baltimore Cloth Price \$10 Pp 649 with 534 Illustrations by William P Didusch Baltimore Williams & Wilkins Company 1937

This volume marks an important milestone in medical literature The interest of its content extends far beyond the realm of urologic and gynecologic surgery and impinges forcibly on the spheres of the internist, the psychiatrist and the pediatrician as well as on those of the urologist and the gynecologist Nothing of its kind has appeared before and the book is destined to be a standard for many years Dr Young has had the rare opportunity of having access to a huge clinical material and has shown the same genius for pioneering in the correction of congenital abnormalities that he has demonstrated in his earlier publications

The first seven and ninth chapters are devoted to a discussion of hermaphroditism and pseudohermaphroditism and occupy approximately 200 pages The discussion is inclusive and takes up the subject from the classical period of Greek art to the most recent contributions on the embryology of the condition The intersexes are described Dr Young has simplified for practical purposes the complex Latin terminology pertaining to pseudohermaphroditism and has adopted the following plan "If the gonads are testes, the patient is called a male pseudohermaphrodite, if ovaries, a female pseudohermaphrodite" The detailed case reports of a series of pseudohermaphrodites and the beautifully illustrated operative technics for their surgical correction are shown in the clear drawings of Mr Didusch Almost every conceivable aberration from the normal has come under the observation of Dr Young and he has made life bearable for many of these unfortunate persons by the remarkable reconstructive surgery illustrated

The eighth chapter discusses the adrenogenital syndrome and its intimate relationship to pathologic changes in the adrenal cortex Most of the cases have been observed in females The operation for the simultaneous exposure and study of the adrenals is a distinct contribution to this branch of surgery, because up to the present all technics other than actual inspection of both adrenals have proved often unsatisfactory and occasionally deceptive

The vaginal abnormalities in hermaphroditism and their correction are discussed in the ninth chapter The plastic corrective surgery on the female genitalia as illustrated in this chapter again demonstrates the peculiar aptitude of the author for this highly specialized type of surgery Masculinization due to ovarian tumors is next described and is illustrated by cases of arrhenoblastoma The tenth chapter deals with the prostate gland in females Its relation to hyperplasia of the adrenal cortex according to Young seems conclusively proved Concomitant effects of adrenal cortical hyperplasia are noted, hypoplasia of the ovaries, failure of the vagina to descend normally, a continuation of the growth of the phallus and the continued growth of the prostatic ducts in the female to form a small but definite prostate as well as other signs of virilism Hypergenitalism in boys and girls is next described at length, ascribed to various endocrinopathies Hypogenitalism and gynecomastia are adequately discussed

The next six chapters are devoted to the congenital abnormalities of the genito urinary tract which the average surgeon is more frequently called on to correct, while of the same high standard as the preceding fifteen chapters, they are not as striking in their content because of our greater familiarity with them The concluding chapter on the relation of the genital tract to the endocrine glands, is a complete summary of present knowledge concerning this fascinating complex, and ever changing subject

As a whole, this volume is a well rounded work on the subjects discussed and should be read by every physician concerned with the aberrations in the physical and mental makeup of human beings

*Differentialdiagnose in der Inneren Medizin* Von Prof. Dr. med. O. Naegeli. Gew. Direktor der Medizinischen Universitätsklinik, Zürich. Lieferung 3. Paper. Price 10.80 marks. Pp. 415. 722 with 59 illustrations. Leipzig: Georg Thieme, 1937.

The third volume of Naegeli's differential diagnosis continues the high quality of condensed discussion observed in the previous two volumes (reviewed in *THE JOURNAL* July 11, 1936, and April 3, 1937). The present volume includes presentation of the problems of differential diagnosis in the febrile diseases, diseases of the bones and joints, diseases of the esophagus, diseases of the heart and blood vessels, diseases of the kidneys and urinary tract, diseases of the nervous system and, in a small section, endocrine disorders. It is curious that diseases of the esophagus are included in this volume; the second volume contained discussion of all other parts of the gastrointestinal tract. The discussion of cardiac diseases is good although tremendously condensed. The discussion of the differential diagnosis of the nephritides is the poorest section of this volume. Here as in the previous volumes one gains the impression that the patient is considered as a loosely correlated collection of systems rather than as a finely equilibrated whole. The printing and paper are good but the binding is atrocious, before three pages had been read the paper binding split and pages began to fall out. Cheaper binding and printing of medical works, so that frequent revisions can be made without too much expense to the readers, are highly desirable, but there are limits which should not be passed. A book should at least stand the handling of one reading. This series of volumes can be recommended as reference work revealing the modern German thought and methods in diagnosis.

*Demonstrations of Physical Signs in Clinical Surgery* By Hamilton Bailey, F.R.C.S. Surgeon Royal Northern Hospital, London. Sixth edition. Cloth. Price \$6.50. Pp. 284 with 358 illustrations. Baltimore: William Wood & Company, 1937.

The appearance of the sixth edition of this work within ten years is indicative of its popularity and usefulness. As its name suggests, it is not a textbook of surgical diagnosis. It deals essentially with various clinical signs in surgery, how they can be elicited and their significance in establishing a diagnosis. The book is profusely illustrated with clearly reproduced photographs, diagrams and colored plates which greatly enhance the descriptions and teaching value of the text. This volume, written in the usual clear simple style of the author, can be easily used and understood even by the beginner.

*Le système nerveux végétatif* Par J. Tinel. Paper. Price 160 francs. Pp. 847 with 306 illustrations. Paris: Masson & Cie, 1937.

The first part of this book deals largely with structure. In his description of the anatomy the author places great emphasis on the autonomous interstitial plexuses and cells of the viscera. His discussion of the sympathetic and parasympathetic systems follows accepted lines. The histology of the vegetative system is described in some detail with beautiful illustrations. Many of the photographs, however, seem to have been extensively retouched. Chapter 2 contains a useful summary of recent work on hormonal and pharmacologic substances activating or paralyzing the vegetative nervous system. In chapters 3 and 4 the sympathetic and parasympathetic systems are described in detail and the functions of their various fibers discussed. The second part of the book deals with the vegetative functions—pilomotor secretory, vasomotor sensory and trophic—and ends with a discussion of the superior vegetative centers and their influence on the regulation of heat, sleep, psychic functions and the metabolism of water and fat. The description of the pilomotor system follows the classic researches of Andre Thomas. The author accepts the general view at the present time that the sympathetic system exercises no direct action on the tonus or contraction of striated muscle. The recent researches of Fulton and his associates on the cortical representation of the vegetative system are not mentioned. The third part of the book discusses the clinical syndromes resulting from lesions at various points of the vegetative nervous system both central and peripheral. In the section on sympathetic reflex pain a great number of clinical histories are introduced and it would make an interesting appendix to the recent volume of Leriche

on the surgery of pain. The author warns that any attempt to suppress by surgical means a pain of sympathetic origin must radically and at once remove the causal local irritation or the trouble will be made much worse. His discussion of surgical intervention contains but little with regard to technique, being concerned mainly with principles. The book ends with a discussion of medical and physical therapy. The personal touch is most evident in the sections dealing with the reflex vasomotor and painful syndromes. The rest is mainly a compilation from the literature, albeit a useful one especially for its summary of French work often difficult to obtain.

*Operative Surgery* By J. Shelton Horsley, M.D., LL.D., F.R.C.S., Attending Surgeon St. Elizabeth's Hospital, Richmond, Va., and Isaac A. Bigler, M.D., Professor of Surgery, Medical College of Virginia, Richmond, Va. With contributions by C. C. Coleman, M.D., F.R.C.S., Professor of Neurological Surgery, Medical College of Virginia; John S. Horsley, Jr., M.D., Assistant Professor of Surgery, Medical College of Virginia; Austin I. Dodson, M.D., F.R.C.S., Professor of Urology, Medical College of Virginia; and Donald W. Fraulinger, M.D., Associate Orthopedic, Medical College of Virginia. Volumes I and II. Fourth edition. Cloth. Price \$15 per set. Pp. 674, 675, 1347 with 1,209 illustrations by Miss Helen Lorraine. St. Louis: C. V. Mosby Company, 1937.

This is one of the most salutary and serviceable contributions to the literature on operative surgery that has appeared since "The Text Book on Operative Surgery" by Theodore Kocher in 1911. Whether or not one agrees with the various hypotheses suggested throughout the text as a means of explaining some of the more obscure and recondite biologic reactions following many different surgical procedures, one cannot but admire and regard with the deepest interest the constant repetition of the suggestion and thought that the art of operating combined with a thorough knowledge of anatomy, while essential, must never blind the surgeon to or allow him to be unmindful of the correct physiologic principles involved and the consequent biologic effects of a surgical operation. The student of surgery is importuned constantly to recall that 'real progress in surgery lies not so much in cultivating the art of surgery and in striving after mechanical dexterity, which is important but can be acquired in a few years, as in the study of biological principles that concern function, nutrition, metabolism and repair of tissue and in the thoughtful application of these principles to every operation and to every method of surgical treatment'. This plea to the student to regard surgery in this broader aspect is stimulating and immediately distinguishes this treatise from other operative surgeries which, while perhaps more inclusive, have been mere technical encyclopedias. The large personal experience of Dr. Horsley, senior and his distinguished collaborators has been related in an attractive and readable manner. The format of the books is excellent. It might be said without exaggeration that this is the only operative surgery published in recent years in which there has been any evidence whatever of the student in it. A sense of selective appraisal pervades the entire text, the authors making no attempt to be inclusive. The surgical policy and philosophy based on the large clinical and experimental knowledge of this distinguished group of surgeons from one of the more prominent medical centers has been annotated. It is not only a pleasure to read but a real help on 'the night before' when sitting in one's study planning an operation for the following morning. The simple concise description of technical procedures experienced by the author, together with their opinions and their suggestions as to the relative merits of special operations described by others, reveals pertinent thought and mature judgment. There has been no 'stuffing' of the text for the sake of forming an impressive but as a rule, totally useless cumbersome index and bibliography. At the conclusion of each chapter a succinct relevant bibliography is given that provides a ready index to a more detailed literature pertaining to any one subject. It is of course obvious that accessibility and brevity must run hand in hand in any textbook on surgery when one considers the great volume of literature that must be digested and that cannot be presented in detail. The illustrations are excellent and remarkably clear. In some instances where they have been redrawn from the original papers the copies are clearer and more descriptive than the original drawing. Every operating surgeon and medical student as well as those in surgical research should have the volumes right at hand on their book shelves.



**Die Irradiation autonomer Reflexe Untersuchungen zur Funktion des autonomen Nervensystems** By Dr Alfred Schweltzer Assistant in Department of Physiology Middlesex Hospital Medical School University of London Paper Price 40 Swiss francs Pp 376 with 38 illustrations Basel S Karger 1937

This textbook on the autonomic nervous system is modern, complete and critically written. The subject matter is described clearly. After two chapters on introduction and classification of the subject matter, the book is divided into three large chapters. The first deals with a general discussion of the conception of nervous irradiation, autonomic reflexes anatomic groundwork and irradiation of the autonomic reflexes, followed by a summary and conclusions. The second chapter deals with a special discussion of the skin and sensory nerves, eye and eye ball, the ear, the respiratory apparatus, the digestive system, the urogenital structures and finally the blood vascular system. The last chapter discusses the biologic significance of the autonomic reflexes. There is an unusually good bibliography occupying about forty printed pages. It includes all the investigators in the field of the autonomic nervous system. There is a general index and an index of authors.

**Primary Carcinoma of the Lung** By Edwin J Simons M.D. Member of the Staff St Gabriel's Hospital Little Falls Minnesota Cloth Price \$3 Pp 263 with 31 illustrations Chicago Year Book Publishers Inc 1937

This is a good review of the present knowledge of carcinoma of the lung. The writer has assembled the more important publications on the subject and added a few cases of his own. The author devotes thirty pages to the incidence of primary carcinoma of the lung, with the conclusion that the disease has increased both absolutely and relatively. The etiology of cancer of the lung is discussed in forty pages. The majority of workers have found no single etiologic agent but numerous forms of chronic irritation which cause epithelial metaplasia and malignant conditions. There are thirty pages on pathology. The histologic types are divided into (1) adenocarcinoma (2) squamous cell and (3) undifferentiated round and spindle cell, in accordance with the important contribution of Arkin and Wagner in *THE JOURNAL*, Feb 22, 1936. The table of these two authors is reproduced, giving the histologic type and site of metastases in seventy-four cases examined post mortem. The clinical considerations cover seventy pages. Sex, age, incidence, clinical classification, symptoms, physical appearances and laboratory data are summarized. The value of the x-rays and bronchoscope are emphasized. The dictum of Arkin and Wagner that "a peculiarly characteristic history of pulmonary well being to within an average of eight months before seeking medical aid, the development of bronchitis or recurrent attacks of pneumonia or pleurisy, persistent cough, pulmonary or extrapulmonary pain, hemoptysis and dyspnea should enable the physician to suspect pulmonary cancer" is reaffirmed by the author's review of the literature. The subject of therapy is discussed with special reference to surgical removal in early cases. The book closes with a bibliography of twenty pages. This book should convince those physicians who are still skeptical about the frequency of primary pulmonary cancer that the disease constitutes about 7 per cent of all primary malignant growths. The only hope of cure is surgical removal in early cases before metastases have spread to other organs.

**The Practitioners Library of Medicine and Surgery Volume XIII Supplement—Index** Supervising Editor George Blumer M.A. M.D. David P. Smith Clinical Professor of Medicine Yale University School of Medicine Cloth Price \$10 Pp 1161 with illustrations New York & London D Appleton Century Company Incorporated 1938

This volume completes the extensive work which has been engaging Dr George Blumer and his associates for some years. In this supplementary volume a variety of subjects are concerned the main headings having to do with endocrinology, medical technic, infectious diseases, diseases of metabolism, of the gastrointestinal tract, of the lungs and of the heart, obscure diseases, therapeutics, anesthesia, genito-urinary system, and the psychologic aspects of pediatric practice. Presumably some of the essays arrived too late to be included in the volumes into which they might have fitted better. It is useful however, to have all of them available for the system would have suffered by their absence. This volume also contains the complete index, which occupies about 350 pages.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Health Insurance "Disease of Organs Which Are Not Common to Both Sexes" Construed**—The defendant insurance company insured the plaintiff against loss of time on account of disease, with the proviso that the policy was not to cover death or disability from any "disease of organs which are not common to both sexes." The insured contracted gonorrhea that resulted in a prostatic abscess and bilateral epididymitis. The company refused to pay the benefits provided in the policy, and the plaintiff sued and obtained judgment in the trial court. The defendant then appealed to the Supreme Court of Nebraska.

A health and accident insurance company, said the court, may limit its liability in any reasonable manner and it may therefore exclude liability for diseases of organs not common to both sexes. Such an exemption, in the opinion of the court, would create an impression on a male layman that it was intended to exempt gonorrhea from the coverage of the policy, although it did not specify that disease. Such an insured would naturally consider that any disease which would afflict him through his penis and its adjuncts would be exempt under the policy because the same disease would begin its course in a female through her genital organs, which he would well understand were not "common" with his, though they have some of the functions similar or complementary to his. The general understanding of the lay mind, the court thought, is that the male and female genital organs are "not common to both sexes." That both sexes have a urethra, both have a bladder and both have a blood stream, all of which may be ultimately affected, does not make the organs of the plaintiff which were primarily affected by the gonococci, and the genital organs of a female "common to both sexes." The Supreme Court, therefore, reversed the judgment of the trial court for the plaintiff and directed that court to enter a judgment for the defendant.—*Hamilton v Mutual Ben Health & Accident Assn (Neb)*, 275 N W 863.

**Workmen's Compensation Acts Detachment of Retina Attributed to Trauma**—Attributing the detachment of the retina of his left eye to a blow received during the course of his employment, the plaintiff instituted proceedings under the workmen's compensation act of Nebraska. The trial court awarded compensation and the defendant employer appealed to the Supreme Court of Nebraska.

In May 1933 the plaintiff while working on a farm was injured by a piece of steel entering his left eye. Attempts made by a physician to remove the steel splinter were unsuccessful. The removal of the eye was recommended but the plaintiff refused to submit to the operation. Apparently the eye improved and the plaintiff subsequently began work for the defendant. According to the plaintiff's testimony, on Sept 2 1935 while in the performance of his work, he bumped his head on a piece of pipe. Five days later he went to a hospital for an operation on his left eye. The attending physician diagnosed the trouble as a retinal detachment which the plaintiff contended was due to the blow he had received September 2.

The physician who attempted to remove the steel splinter in 1933 testified that he had at that time recommended the removal of the eye for the reason that complications were bound to come sooner or later which would seriously damage the uninjured eye. He also testified that the steel splinter was the cause of the detached retina and that the alleged trauma to the head was merely coincidental with the development of the condition resulting in the detachment of the retina. He further testified that the steel splinter was reduced in size during the two years it was embedded in the eye and that this breakdown of the foreign body would produce a low-grade inflammatory reaction in the retina which would ultimately cause a detach-

ment of it. Another physician, however, testified to the effect that the steel splinter would cause the plaintiff no harm after it became encysted, in the absence of trauma. He testified, further, that the plaintiff suffered from sinus infection in August 1935 that required a drainage of the sinuses by operative surgery. After the operation the sinuses cleared up, but the plaintiff's left eye was inflamed to such an extent that medical treatment was continued. This condition existed prior to the date of the alleged accident and continued until it was diagnosed on Sept. 4, 1935, as retinal detachment. The plaintiff offered in evidence quotations from medical books citing instances in which steel and copper foreign bodies had remained in the eye for many years and even for a lifetime. An examination of these authorities, however, convinced the court that they were cited as rare exceptions to the general rule that an eye containing a steel or copper splinter generally breaks down as a result thereof in a much less period of time.

For the plaintiff to be entitled to compensation, the court said, he must prove by preponderance of the evidence that he suffered an accident arising out of and in the course of his employment which resulted in the injuries for which he claims an award. This, the court said, the plaintiff failed to do. The only proof in the record that he suffered injury while in the employ of the defendant was the evidence he himself gave. His testimony that he was injured while working was impeached by the testimony of three other witnesses. The evidence, the court continued, indicated that the plaintiff had prior to the date of the alleged accident an inflammation of the left eye after the sinus infection had been relieved which continued until the trouble was diagnosed as a detachment of the retina. The fact that only the left eye was inflamed during this period was indicative of the commencement of the deterioration of the eye before the alleged accident occurred. That inflammation of an eye containing a steel particle is a sign of an impending retinal detachment seemed to the court to be sustained by the testimony and by the medical authorities cited.

Finding that the plaintiff had failed to prove by a preponderance of evidence that he suffered an injury arising out of and in the course of his employment, the judgment of the trial court granting compensation was reversed and the action dismissed.—*Loehr v Alamito Dairy Co (Neb)*, 275 N W 596

**Telephone Liability for Failure to List Physician in Classified Section**—The plaintiff, a physician, subscribed for a business telephone and the telephone company entered into a contract with him to list his name in both the regular and classified business sections of the telephone directory. The company contracted with the defendant publishers for the editing and publication of the telephone directory. The plaintiff's name did not appear in the classified section, he sued the telephone company and the publishers and the jury returned a verdict for \$3,000 for the plaintiff. The defendants filed separate motions for new trials and motions for judgment notwithstanding the verdict. The motions for a new trial were sustained but the motions for judgment notwithstanding the verdict were overruled. The defendants then appealed to the court of appeals of Ohio, Hamilton County.

There was clearly a contract between the plaintiff and the telephone company, the court said, for the listing of his name in the classified section. For a failure so to list, the plaintiff had a cause of action unless there were some circumstances which would excuse performance by the telephone company. The company argued that it complied with all legal requirements by listing the physician in the white section of the directory. But the court said, while the rules and regulations of the Public Utilities Commission required the listing only in the white section, this was the minimum requirement and did not in any way limit or prohibit the subscriber from making arrangements for the betterment of his service. There was nothing in such rules and regulations to prohibit or make illegal the carrying of names and numbers in the classified business section. Furthermore continued the court, the contract between the telephone company and the publishers was one by which the latter undertook to perform a duty the telephone company owed the

plaintiff. The plaintiff, therefore, was a creditor beneficiary of that contract and as such could maintain an action against the publishers. The trial court did not err, said the appellate court in overruling the motions for judgment notwithstanding the verdict for the plaintiff.—*Fair v. Reuben H. Donnelly Corporation (Ohio)*, 10 N E (2d) 239

## Society Proceedings

### COMING MEETINGS

- American Medical Association San Francisco June 13 17 Dr. Olin West  
555 North Dearborn St. Chicago Secretary
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Clifford G. Grulee 636 Church St. Evanston Ill. Secretary
- American Academy of Tuberculosis Physicians San Francisco June  
17 18 Dr. Arnold Minning 638 Metropolitan Bldg. Denver Secretary
- American Association of Industrial Physicians and Surgeons Chicago  
June 6 9 Dr. Volney S. Cheney Armour and Company Union Stock  
Yards Chicago Secretary
- American Association of Medical Milk Commissions San Francisco  
June 13 14 Dr. Paul B. Cassidy 2037 Pine St. Philadelphia  
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- American Dermatological Association Del Monte Calif June 9 11 Dr.  
Fred D. Weidman 36 Hamilton Walk Philadelphia Secretary
- American Gynecological Society Asheville N. C. May 30 June 1 Dr.  
Richard W. Telinde 11 East Chase St. Baltimore Secretary
- American Heart Association San Francisco June 10 11 Dr. Howard B.  
Sprague, 50 West 50th St. New York Secretary
- American Medical Women's Association San Francisco June 12 14 Dr.  
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Rosser 710 Medical Arts Bldg. Dallas Texas Secretary
- American Psychiatric Association San Francisco June 6 10 Dr. W. C.  
Sandy State Education Bldg. Harrisburg Pa. Secretary
- American Radium Society San Francisco June 13 14 Dr. T. W.  
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- American Rheumatism Association San Francisco June 13 Dr. Loring  
T. Swann 372 Marlborough St. Boston Secretary
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13 14 Dr. E. Kost Shelton 921 Westwood Blvd. Los Angeles  
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West Sixth St. Topeka Executive Secretary
- Maine Medical Association Bar Harbor June 26 28 Dr. F. R. Carter  
22 Arsenal St. Portland Secretary
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2 East 103d St. New York Secretary
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- National Tuberculosis Association Los Angeles June 20 23 Dr. Charles  
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## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1927 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (\*) are abstracted below.

### American Journal of Cancer, New York

32 163 338 (Feb.) 1938

- Ghioneuroma and Spongioneuroblastoma Forms of Primary Neuro-Ectodermal Tumors of the Brain J H Globus New York—p 163  
Spheno-Occipital Chordoma J H Peers Boston—p 221  
Effect of Oil of Wintergreen on Spontaneous Tumors of Mammary Gland in Mice VI Different Effect of Two Fractions Obtained by Distillation of True Oil L C Strong New Haven Conn—p 227  
Bio Electric Properties of Cancer Resistant and Cancer Susceptible Mice H S Burr G M Smith and L C Strong New Haven Conn—p 240  
Effect of Human and Animal Urine and of Serums on Ovaries of Animals A Strickler Philadelphia—p 249  
Proliferative Changes Taking Place in Epithelium of Vagina and Cervix of Mice with Advancing Age and Under Influence of Experimentally Administered Estrogenic Hormones V Sontzeff E L Burns Marian Moskop and L Loeb St Louis—p 256

### American Journal of Hygiene, Baltimore

27 1220 (Jan.) 1938

- Passive Sensitization of Guinea Pigs to Specific Carbohydrate with Globulins of Type III Antipneumococcus Horse Serum as Influenced by Environmental Temperature and Feeding Thyroid Gland G H Bailey and S Raffel Baltimore—p 1  
Results Obtained in Cooperative Investigation of Bacteriologic Mediums for Milk Counts J H Brown Baltimore C W Bonyne Los Angeles and H Moak Brooklyn—p 12  
Liver Lesions Caused by Chlorinated Naphthalene F B Flinn and N E Jarvis New York—p 19  
Cellular Response in Acquired Resistance in Guinea Pigs to Infection with Pig Ascaris K B Kerr Baltimore—p 28  
Attempts to Induce an Artificial Immunity Against the Dog Hookworm Ancylostoma Caninum and the Pig Ascaris Ascaris Lumbricoides Suini K B Kerr Baltimore—p 52  
Studies on Passive Transference of Acquired Resistance to Dog Hookworm and Pig Ascaris K B Kerr Baltimore—p 60  
Occurrence and Succession of Coliform Organisms in Human Feces L W Parr Washington D C—p 67  
Incidence of Mixed Infections with Intestinal Protozoa D C Boughton and E E Byrd Athens Ga—p 88  
Eggs of Nysorhynchus Group of Anopheles (Culicidae) in Panama L E Rozeboom Panama Republic of Panama—p 95  
Comparison of Effectiveness of Subcutaneous and Intravenous Injections of Tetanus Toxin J R Dawson Jr New York—p 108  
Serologic Relationship of Some Helminths L L Eisenbrandt New Brunswick N J—p 117  
Prevalence of Trichinosis C H Scheffey Minneapolis—p 142  
Self Limitation and Resistance in Trichomonas Fetus Infection in Cattle J Andrews Baltimore—p 149  
Regularity of Egg Output of Helminth Infestations with Especial Reference to Schistosoma Mansoni J A Scott Baltimore—p 155  
Studies in Egypt on Correction of Helminth Egg Count Data for Size and Consistency of Stools J A Scott and W H Headlee Baltimore—p 176  
Reciprocal Immunity in Avian Malaras R D Maxwell Syracuse N Y—p 190  
Toxoplasma like Parasites in Canaries Infected with Plasmodium R Hegner and Fruma Wolfson Baltimore—p 212

**Prevalence of Trichinosis**—From 2597 cadaver examinations summarized from the literature since 1901 an incidence of trichina infestation of 123 per cent is derived. Scheffey discusses a survey of 118 cadavers from Minneapolis and St. Paul Charity hospitals of which 127 per cent were found to harbor the trichinae. This is combined with a previous report on 117 cadavers from the dissecting room from Minneapolis giving 235 cases with an incidence of 144 per cent. Evidence is presented which indicates that the incidence of trichinosis among the adults of the United States is about 20 per cent.

### American Journal of Medical Sciences, Philadelphia

195 281 428 (March) 1938

- Influence of Mucin on Absorption of Iron in Hypochromic Anemia C W Heath G R Minot F J Poble and G Alsted Boston—p 281  
\*Clinical Observations on Whipple Liver Fraction (Secondary Anemia Fraction) W H Barker and D K Miller New York—p 287  
\*Pulmonary Involvement in Lymphosarcoma and Lymphatic Leukemia E H Falconer and M E Leonard San Francisco—p 294  
Electrocardiographic Changes and Peripheral Nerve Palsies in Toxic Diphtheria E A Burkhardt C Eggleston and L W Smith New York—p 301  
Effects of Carotenyne on Function of Thyroid and Liver H H Anderson and M H Soley San Francisco—p 313  
Blood Sugar During Labor at Delivery and Post Partum with Observations on the Newborn Rose C Ketteringham and B R Austin Cleveland—p 318  
Blood and Urine of Dogs Following Paraldehyde J H Defendorf, Washington D C—p 329  
Observations on Two Different Pressor Substances Obtained from Extracts of Renal Tissue J R Williams Jr, T R Harrison and M F Mason Nashville Tenn—p 339  
Marihuana Our New Addiction N S Yawger Philadelphia—p 351  
Sterility of Alcohol L Gershenfeld Philadelphia—p 358  
Negative Results of Rhus Antigen Treatment of Experimental Ivy Poisoning L M Sompayrac Jacksonville Fla—p 361  
Urinary Output of Vitamin C in Active Tuberculosis in Children W W Jetter and T S Bumbalo Buffalo—p 362  
Further Note on Carcinoma of the Breast in One of Homologous Twin Sisters I I Kaplan New York—p 366

### Clinical Observations on Use of Liver Fraction—

Barker and Miller administered orally the secondary anemia liver fraction of Whipple and his co-workers to eleven patients with chronic hypochromic microcytic anemia. During the control period eight patients showed at least a slight reticulocyte response to 70 mg of iron a day, which responses varied from 12 to 7 per cent and occurred between the fourth and the tenth day after the initial dose of iron. Following the peak, the reticulocyte curve declined or flattened out until 25 Gm of liver extract daily was substituted for the inorganic iron preparation in the second observation period. Then each of the eleven patients gave a secondary reticulocytic response to this liver fraction the peak of the rise ranging from 3 to 158 per cent. A moderate rise in levels of erythrocytes and hemoglobin occurred during these first two periods of therapy, however, the rate of improvement in blood levels was much more rapid in the third period when the patients were receiving large doses of inorganic iron. Of the seven cases in which reticulocytes were followed throughout the third period, tertiary reticulocyte rises which equaled or exceeded the primary and secondary responses developed in five. It appears likely that the liver fraction contains reticulocytogenic material apart from its iron content.

**Pulmonary Involvement in Lymphosarcoma and Lymphatic Leukemia**—Falconer and Leonard attempt to correlate the clinical, pathologic and x-ray observations showing pulmonary involvement. The figures for pulmonary incidence were lymphatic leukemia 30 per cent and lymphosarcoma 36 per cent. Previous observations in Hodgkin's disease showed 31 per cent. Interest is enhanced if one considers Hodgkin's disease an infection and the former two diseases neoplastic in nature. From the clinical x-ray and pathologic aspects the authors' studies with reference to pulmonary involvement in the three groups of diseases show a striking similarity. In the cases of Hodgkin's disease the time between onset and appearance of pulmonary symptoms varied from onset with pulmonary symptoms to eight years. In two patients pulmonary symptoms were primary. In five patients the time varied from two months to eight years. The length of life after onset of pulmonary involvement varied from twenty-two to fifty one months. These figures, when compared with the corresponding figures for lymphatic leukemia and lymphosarcoma show that the cases of Hodgkin's disease apparently ran a more slowly progressive and chronic course. In the lymphatic leukemia group the duration of life was from two months to eleven years, eight patients living less than four years after onset of symptoms. In the lymphosarcoma series the figures for duration of life are from four months to four and one-half years, eight patients living less than four years after onset of symptoms. Pulmonary involvement in the majority of cases in both series tended to occur when the disease became widespread in the body. Once the parenchyma of

the lung becomes involved or pleural effusion supervenes, the outlook is poor. Patients with either disease vary greatly in their sensitivity to radiation, and for this reason it should always be used to the full limits of its possibilities.

### American Journal of Physiology, Baltimore

121 311 564 (Feb.) 1938 Partial Index

- Hydrogen Ion Concentration Changes in Rabbit and Human Striated Muscle After Contraction G L Maisson O S Orth and K E Lemmer, Madison Wis—p 311
- Response of Plasma Potassium Level in Man to Administration of Epinephrine A Keys Rochester Minn—p 325
- Immature Rat Uterus as an Assay Endpoint for Gonadotropic Substances C G Heller H Lanson and E L Sevringhaus, Madison Wis—p 364
- Changes in Water of Tissues Induced by Diets Containing Various Mineral Supplements E S Eppright and A H Smith New Haven Conn—p 379
- Response of Single Optic Nerve Fibers of Vertebrate Eye to Illumination of Retina H K Hartline Philadelphia—p 400
- \*Nature of Magnesium Tetany D M Greenberg and Elma V Tufts Berkeley Calif—p 416
- Effect of Magnesium Deprivation on Renal Function D M Greenberg S P Lucia and Elma V Tufts Berkeley Calif—p 424
- Theory of Retinocerebral Function with Formulas for Threshold Vision and Light and Dark Adaptation at the Fovea C A Elsberg and H Spatnitz assisted by Jane Stewart New York—p 454
- Relationship of Calcium Ion Concentration to Coagulation of Citrated Plasma J C Ransmeier and F C McLean Chicago—p 488
- Effect of Body Temperature on Reaction Time N Kleitman S Titelbaum and P Feiveson Chicago—p 495
- Changes with Age in Basal Metabolic Rate in Adult Men W H Lewis Jr New York—p 502
- Changes with Age in Cardiac Output in Adult Men W H Lewis Jr New York—p 517
- Rate of Disappearance of Intravenously Administered Dextrose in Human Subject M Pijoan and J G Gibson 2d Boston—p 534
- Effect of Adrenal Cortical Extract on Oxygen Consumption of Normal Human Beings F A Hitchcock R C Grubbs and F A Hartman Columbus Ohio—p 542
- Effects of Adrenal Cortical Extract in Rest and Work V Missiuro D B Dill and H T Edwards Columbus Ohio—p 549

**Nature of Magnesium Tetany**—In a study of the syndrome of magnesium tetany, Greenberg and Tufts obtained results similar to those of Kruse, Orent and McCollum. The incidence, time of onset and duration of peripheral vasodilatation and hyperirritability in magnesium deficient rats were found to be greatly affected by the degree of magnesium deficiency, the starting age of the rats and the dietary levels of calcium and vitamin G. The lesion concerned with the hyperirritability appears to be in the midbrain or pons. This localization is supported by an increased sensitivity of the deficient animals to the convulsant action of picrotoxin and the protective action of subanesthetic doses of a barbiturate (sodium amytal) against convulsions. Magnesium tetany differs from calcium tetany in that curare does not prevent the onset of convulsive seizures in this condition.

### American Review of Tuberculosis, New York

37 259 368 (March) 1938

- Statistical Basis of Errors in Immunity Tests W N Berg—p 259
- Daily Variations in Tuberculin Reaction I Range of Variation in Tuberculous and Control Subjects J S Howe Chicago—p 264
- Id II Relation to Vascular Pressor Episode J S Howe Chicago—p 273
- Possibility of Sensitization to Tuberculin W E Nelson A G Mitchell and Estelle W Brown Cincinnati—p 286
- Intracutaneous Tuberculin Reaction Associated with Calcified Intrathoracic Lesions W E Nelson A G Mitchell and Estelle W Brown Cincinnati—p 311
- \*Diagnosis and Treatment of Tuberculous Tracheobronchitis W Warren A E Hammond and W M Tuttle Detroit—p 315
- Bronchial Factor in Cavitation S J Shipman San Francisco—p 336
- Progressive Primary Complex O Auerbach Staten Island N Y—p 346
- Generalized Nodular Tuberculosis Report of Case Associated with Primary Carcinoma of Lung J E Welker and L H Leger Kansas City Kan—p 354

**Tuberculous Tracheobronchitis**—Warren and his associates review the types of lesions present in seventy-four patients with tracheobronchial tuberculosis found during the last twelve months. The ulcerative lesions fall into two types: the discrete ulcer and the granulating ulcer. The granulating type has occurred most commonly about the orifice of the main bronchus on the carina and in the lower portion of the trachea. Healed and ulcerating stenosing lesions have been observed. The healed

stenosis represents a healed ulcerative lesion in which the reparative process has partially or completely occluded the lumen. The ulcerostenosis represents a stage midway between the healed, cicatricial stenoses and the granulating ulcer. Tuberculous or tuberculous granuloma has been observed in four patients. In three patients there was a diffuse hyperemia of the bronchial mucosa with moderate mucosal edema. There are no clearcut grounds for the assumption that this is a tuberculous lesion other than that in two patients the sputum was positive, although neither had a demonstrable lesion to account for the tubercle bacilli. Biopsies were performed in fourteen cases in which the lesion was large enough to obtain tissue safely for study. In four instances the lesions were tuberculomas and in ten were of the granulating ulcer type in which the growth of granulation tissue was great enough to obtain a bite. The specimens for biopsy obtained from the four patients in whom a tumor mass was present were all tuberculous granulomas. The remaining biopsies in cases in which a granulating ulcer was present showed tubercles in four of the ten cases. Up till now there has been no evidence that removing small pieces of tissue from these lesions has led to any untoward results. The danger of perforating the bronchial wall in these cases outweighs the value of the additional information obtained by biopsy. The authors are unable to render the rather severe prognosis which has been given heretofore. In the number of cases reviewed there have been six deaths. These have not been due to the tuberculous bronchial ulceration but to the severity of the parenchymal lesion. Bronchial ulceration may be in some instances a manifestation of poorly resisted disease, but this is not true in all cases. In some instances such lesions heal spontaneously, but, when they are treated early, healing occurs and leaves little or no trace, when the ulcer is old and deep stenosis has already begun to develop and this is an irreversible process. It seems better to err on the side of performing a bronchoscopic examination on a patient with a normal bronchus when the diagnosis is in doubt than to leave the ulcer untreated.

### Archives of Dermatology and Syphilology, Chicago

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- Xanthomatosis Correlation of Clinical Histopathologic and Chemical Studies of Cutaneous Xanthoma H Montgomery and A E Osterberg Rochester Minn—p 373
- \*Lupus Erythematosus Increased Incidence Hematuria and Spectroscopic Finding J B Ludy and E F Corson Philadelphia—p 403
- Lupus Erythematosus of Conjunctiva D W Montgomery San Francisco—p 417
- Scleredema Adulorum (Buschke) S E Sweitzer and C W Jaymon Minneapolis—p 420
- \*Serologic Evidence of Syphilis in Malarial Patients H H Hazen Washington D C F E Senear Chicago T Parran Washington D C A H Sanford Rochester Minn W M Simpson Dayton Ohio and R A Vanderlehr Washington D C—p 431
- Dermatitis Due to Cocobolo Wood E W Abramowitz New York and W B Swarts Philadelphia—p 441
- Mesenchymoma New Type of Turban Tumor E B Traubler L Goldman Cincinnati and C Barrett Lexington Ky—p 444
- Pathogenesis of Noncavitating Epithelioid Tuberculosis of Hypoderm and Lymph Glands L G Beinhauer and R R Mellon Pittsburgh—p 451
- Cryptococcus Histolyticus Isolated from Subcutaneous Tumor R B Dienst Augusta Ga—p 461
- Parapsoriasis en Plaques Disminues and Incipient Mycosis Fungoides Critical Review with Report of Illustrative Case H Keil New York—p 465

**Lupus Erythematosus**—Ludy and Corson say that the incidence of lupus erythematosus in Philadelphia shows a decided increase during the last few years. The possibility that metallic poisons produce similar changes must be considered. Hematuria was noted in many patients with acute lupus erythematosus. This substance acting as a photodynamic sensitizer, could readily account for dermal changes. Along with other danger signals hematuria may take its place as a deterrent to the use of gold compounds in treating lupus erythematosus. The authors propose that in a susceptible subject, with a streptococcal toxemia or a tuberculous pyogenic background the presence of a porphyrin substance in the blood stream may engender photosensitivity and cause lupus erythematosus to appear as a result of exposure to light. In some cases a metallic element acting as a catalyst may be responsible for producing the same result. In all cases in which chronic di-

cold characteristics appear later there may have been a stage at which porphyrin was present. Porphyrin cannot be detected in abnormal quantities in the stationary stage. The presence of lead in the skin of every patient with lupus erythematosus that has been examined with the spectroscope seems more than coincidental and encourages further investigation of this aspect of the disease.

**Serologic Evidence of Syphilis in Malarial Patients**—In June 1935 the committee on evaluation of serodiagnostic tests for syphilis first reported on the frequency of positive reactions among patients with malaria. In a study of 266 presumably unsyphilitic patients with malaria, Hazen and his collaborators obtained eighty-two positive (8 per cent) and fifty-one doubtful reports. Serologic examinations were repeated on forty-nine of the fifty-one donors who showed one or more positive reactions, with the result that there was a decrease of twenty-four in a total of eighty positive reports. Among sixty-eight specimens from eighteen white girls less than 10 years of age there were 132 per cent that were positive, the highest percentage in any age group except that from 60 to 69 years. Female subjects showed a higher percentage of positive results than did males. Such figures do not follow the usual trend of the prevalence of syphilis. There is a striking dissimilarity of positive reports for the different age groups. It seems safe to assume that malaria, like leprosy, can be the cause of positive serologic reactions to tests for syphilis. It is probable that more than one patient has been placed under treatment for syphilis when malaria was the cause of his positive serologic reaction.

### Arkansas Medical Society Journal, Fort Smith

34 203 230 (March) 1938

- Clinical Types of Mastoiditis H W Lyman St Louis—p 203  
Conservative Surgical Treatment of Duodenal Ulcer H W Hundling Little Rock—p 206  
The Applicability of Allergy to General Practice C H Eyermann St Louis—p 210

### Canadian Public Health Journal, Toronto

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- Control of Tuberculosis in Rural Areas R M Atwater New York—p 53  
Food Purchases by Families in Edmonton and Lacombe Alta A Stewart and W D Porter Edmonton Alta—p 58  
Arsenic Poisoning of a Large Family J Archambault—p 67  
The Public Health Nurse in Industry Hazel A Latimer Hull Que—p 74  
Practical Aspects of Community Mental Health A M Doyle Kingston Ont—p 80  
Investigation of a Case of Undulant Fever A Jeannotte Ville Marie Que—p 80

### Endocrinology, Los Angeles

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- Thyrotropic Hormone and Antihormone Problem S C Werner New York—p 291  
Serum Proteins Before and After Operations for Hyperthyroidism R B Brown and P M Mearns Philadelphia—p 302  
Sex Hormone Excretion of Children R B Oesting and B Webster New York—p 307  
Is the Blood Calcium Level of Mammals Influenced by Estrogenic Substances? L Levin and P E Smith New York—p 315  
Observations on Quantitative Assay of Growth Promoting Extract of Hypophysis C Chou Chin Chang C Chen and H B Van Dyke Peiping China—p 322  
Biologic Effects of Thymus Extract (Hanson) on Thymectomized Rats Overcorrection of Retardation in Growth and Development Incident to Thymectomy in Successive Generations of Rats N H Einhorn Philadelphia—p 335  
Biologic Effects of Thymus Implantation in Normal Rats Accruing Acceleration in Rate of Growth and Development in Successive Generations of Rats Following Frequent Homologous Thymus Implants N H Einhorn and L G Rowntree Philadelphia—p 342  
Influence of Adrenalectomy on Sex Difference in Ketosis E M Mackay and R H Barnes La Jolla Calif—p 351  
Criteria for Selection of Estrous Rabbits Significance of Seasonal Factors M H Friedman Philadelphia—p 354  
Effect of Synthetic Androgen on Gonadotropic Potency of Anterior Pituitary J B Hamilton and J M Wolfe Albany N Y—p 360  
Chick Testis Weight Response to Gonadotropic Hormone T C Byerly and W H Burrows Washington D C—p 366  
Experimentally Induced Ovulation in Dwarf Mice C M Osborn Cambridge Mass—p 370

**Serum Proteins in Hyperthyroidism**—Brown and Mearns studied the total serum proteins in twenty-four cases of hyperthyroidism (twenty-three of diffuse toxic goiter and one of toxic nodular goiter). In all cases the initial basal metabolic rate

was +30 or above. Serum protein determinations were made preoperatively and mostly before any iodine was administered. Similar studies were made at intervals varying from three to twelve months after operation. In fourteen of the group the concentration of the serum proteins rose after operation in excess of the error of the method, in fifteen the preoperative level was below the accepted normal concentration. No relation was found between the preoperative serum protein levels and the duration of the symptoms of hyperthyroidism, and the same is true for the percentage increase of serum proteins after operation, with percentage weight gain. The mean increase in serum protein concentration was 13, 15 and 14 per cent in patients gaining up to 10, 20 and more than 20 per cent, respectively, of body weight following operation.

### Ohio State Medical Journal, Columbus

34 249 368 (March) 1938

- Cardiovascular Syphilis F C Clifford and A P James Toledo—p 265  
Panhysterectomy W H Weir Cleveland—p 270  
The Physician Patient Relation in Psychotherapy T A Rutliff Cincinnati—p 277  
Seasonal Variations in Incidence of Cardiovascular Disease with Especial Reference to Respiratory Infections in Winter Months W H Bunn Youngstown—p 280  
Parietal Neuralgia W Bates Philadelphia—p 283  
Treatment of Ringworm of the Feet H J Parkhurst Toledo—p 288  
Cystic Disease of Lung W H Maddox Wauseon—p 292  
Delivery Through Rectum of Extra Uterine Fetus C C Perry and J Saltzman Cleveland—p 296  
Diabetic Surgery R E Pickett Newark—p 299  
Rupture of Chordae Tendineae of Normal Mitral Valve Case Report R W Kissane and R A Koons Columbus—p 303

### Review of Gastroenterology, New York

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- Food Idiosyncrasy as Factor of Importance in Gastroenterology and in Allergy W T Vaughan Richmond Va—p 1  
Value of Medical Plan of Treatment in Intestinal Obstruction A L Levin and M Shushan New Orleans—p 7  
Rational Treatment of Amebic Dysentery with Especial Reference to Eradication of Parasite by Intracolonic Thermal Method D De Rivas Philadelphia—p 15  
Clinical Aspects of Strongyloides Stercoralis Infection E H Hinman Wilson Dam Ala—p 24  
Surgical Treatment of Duodenal Ulcer L R Dragstedt Chicago—p 34  
Meulengracht Treatment of Bleeding Peptic Ulcer L J Boyd and M Sehlbachman New York—p 43  
Study of Occupational Adjustment of Patients with Peptic Ulcer J Meyer and Eleanor Scher Chicago—p 54  
\*Circumscribed Hypertrophic Proctitis W A Fansler and J K Anderson Minneapolis—p 64  
Radiation Therapy in Carcinoma of Anus Rectum and Sigmoid Colon I Arons New York—p 68  
Roentgen Findings in Some Gastrointestinal Lesions Producing Respiratory Symptoms J T Farrell Jr Philadelphia—p 79

**Circumscribed Hypertrophic Proctitis**—Fansler and Anderson discuss an inflammatory condition of the rectum which they have termed "circumscribed hypertrophic proctitis." The condition has been seen occasionally for many years but has been dismissed as an intractable proctitis. The distinctive characteristics are as follows: 1 A circumscribed area of inflammation of varying severity frequently with hypertrophic change which may or may not involve the anal canal. The lesion extends upward for only 2 or 3 inches, where the area of inflammation changes abruptly to normal rectal mucosa. 2 The condition is extremely chronic in character, does not yield to the ordinary method of treatment and remains localized regardless of its duration. 3 Perirectal abscess and fistula are common complications. 4 Actual cauterization is the most successful method of treatment.

### Rhode Island Medical Journal, Providence

21 41 58 (March) 1938

- The Stillbirth and Infant Mortality for Woonsocket R I in 1936 Compared with Statistics for 1925 J P O'Brien Woonsocket—p 41

### South Carolina Medical Assn Journal, Greenville

34 25 62 (Feb) 1938

- Meningococcic Meningitis Anal. is of 100 Cases F B Johnson and J E L Reveley Charleston—p 25  
X-Ray Findings in Peptic Ulcer C Brown Walterboro—p 32  
Summary of Wassermann and Kahn Testing Survey at the South Carolina Penitentiary S Simons Columbia—p 34  
Studies Relating to Causes of Cancer and Therapeutic Applications Based on Them J C McLeod and I J Ravenel Florence—p 37



of myocardial changes, can be excluded. The electrocardiographic changes consisted of extrasystolic and other disturbances in the rhythm and in changes in the intermediate portion of the electrocardiogram. Animal experiments and clinical observations, often corroborated by necropsy, show that the electrocardiographic changes are of central origin. By irritation of the sympathetic centers of the paramedian central gray substance, disturbances in the cardiac rhythm and in the cardiac blood perfusion can be elicited by way of the long cardiac nerves as well as by way of the descending tracts and of the spinal parasympathetic. In patients with brain tumors but with normal hearts such centrally elicited disturbances in the cardiac activity may dominate the clinical picture.

**Cevitamic Acid Content of Cerebrospinal Fluid**—Mella and Klimo say that efforts to utilize deviations in the cevitamic acid content of the cerebrospinal fluid as a diagnostic aid in diseases of the central nervous system have failed. On the other hand, low cevitamic acid content of the cerebrospinal fluid is the manifestation of a C hypovitaminosis. The authors studied the cevitamic acid content of the cerebrospinal fluid in the course of an entire year to be able to estimate the influence exerted by the food during the different seasons. They made systematic studies for thirteen successive months in 277 cases. Some of the specimens of cerebrospinal fluid were from normal subjects and some were from patients with disorders of the central nervous system. Since in both groups the values were often low and normal values were often found in patients with severe disorders of the central nervous system, it was concluded that the detected values were of no diagnostic significance. However, there were seasonal fluctuations of the cevitamic acid content of the cerebrospinal fluid. The minimum was detected during the spring months, the maximum during the fall. The authors conclude that the cevitamic acid content of the cerebrospinal fluid is an important diagnostic aid in the diagnosis of hypovitaminosis.

**Diabetes Mellitus and Blood Pressure**—Donhoff and Szabo's observations on 420 patients with diabetes and on a large polyclinical material convinced them that there is no difference in the incidence of hypertension in diabetic persons and in those without this metabolic disorder. Moreover as regards insulin requirements and mortality, they found no difference between diabetic patients with or without hypertension.

### Munchener medizinische Wochenschrift, Munich

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Early Orthopedic Treatment of Poliomyelitis M Lange —p 273

Early Detection of Pulmonary Tuberculosis R Griesbach and A Wieda —p 277

\*Experiences with Havlicek's Method of Reinjecting Patient's Own Blood Following Its Irradiation with Ultraviolet Rays S Litzner —p 280

Nontuberculous Pulmonary Disease with Tuberculosis like Roentgenogram R Schoen and W Naumann —p 287

Poentgenograms of Lung Difficult to Interpret K Patschikowski —p 292

\*Clinical Aspects and Pathology of Cardiac Hemoptysis Not Caused by Infarct H U Guizetti and G Dinkler —p 295

**Reinjection of Irradiated Blood**—Litzner cites the method of autohemotherapy introduced by Havlicek which differs from ordinary autohemotherapy in that the blood is subjected to ultraviolet irradiation. The authors begin with from 6 to 8 cc of blood, to which is added about one tenth of that quantity of 3.8 per cent sodium citrate solution. The first time they irradiate the blood for one half minute and subsequently increase the time by one-half minute each time until a total of five minutes has been reached. Usually the injections were given two or three times weekly until from fourteen to eighteen injections had been reached, in other cases daily injections were given for eight days and after that injections were given twice each week. The mode of injection was always intramuscular. Improvement generally became noticeable after five or six injections. Noteworthy is the improvement in the general condition and in the analgesic action, especially in arthritis deformans. In chronic infectious rheumatism the injection of the patient's own irradiated blood is of no special value. However Havlicek's autohemotherapy was effective in acute or subacute articular rheumatism. Acute allergic diseases of the skin reacted promptly to the injections. In the conclusion he says that reinjection of irradiated blood involves no dangers and can be used with good results in some arthritic and allergic disorders.

**Cardiac Hemoptysis**—Guizetti and Dinkler say that it is not so well known that pulmonary hemorrhages may develop in severe cardiac pulmonary stasis without the presence of infarcts. They describe six cases of their own. Stasis in the lesser circulation with increase in pressure (usually on the basis of mitral stenosis) leads, in case of a strong, not decompensated right side of the heart, to diapedesis in the region of the alveolar or bronchial capillaries or where these pass into the venous pulmonary region. The hemorrhages appear probably simultaneously at several sites and assume a profuse character. The treatment of these pulmonary hemorrhages is of little avail. Sedatives and rest in bed should be employed. Blood transfusion is contraindicated. The authors resorted to venesection in order to relieve the pulmonary stasis. They advise against the use of digitalis, strophanthus and similar cardiac remedies.

### Wiener klinische Wochenschrift, Vienna

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Convulsions During Childhood F Hamburger —p 225

Short Wave Treatment in Gynecology V Toderl —p 229

\*Severe Rhythmic Disturbances of Heart Elicited by Irritation of Oral and Pharyngeal Mucosa C V Medvei and H Uberall —p 234

Treatment of Patient with Pemphigus by Means of Active Immunization and Contents of Pemphigus Bullae A E H Binger —p 237

Electrical Accidents E Kormoczi —p 238

Electrical Accidents S Jelinek —p 239

**Cardiac Rhythm Affected by Irritation of Oral Mucosa**—Medvei and Ueberall report the case of a woman aged 62 who, following follicular tonsillitis, developed piercing pricks in the left side of the neck during the swallowing of food. The attacks lasted only a few seconds, then gradually subsided and remained absent for a year then recurred. Anesthetization of the pharyngeal mucosa produced cessation of the attack for a time. Later the attacks recurred whenever food touched the left palatine arch or the left pharyngeal wall. When pressure is applied on this region the patient feels pain in the left ear, becomes pale and loses consciousness, the head and eyeballs turn to the right, the pupillary reactions are abolished and bradycardia occurs, pulsation decreases and clonic spasms are noticeable. The attack lasts from sixty to ninety seconds. Electrocardiographic studies revealed disturbances in the cardiac rhythm. During some of the attacks a nodal rhythm could be observed. The authors think that the disturbance in the cardiac rhythm and the accompanying loss of consciousness are doubtless of neurogenic origin and that they are elicited by way of the vagus nerve. The patient had a primary impairment of the cardiac muscle and a hypertension. Radium irradiation of the oral and pharyngeal mucosa stopped the attacks.

### Nederlandsch Tijdschrift v Geneeskunde, Amsterdam

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Pasteurella Avicida in Purulent Sputum of Patient with Chronic Bronchitis J Mulder and A De Boer —p 977

\*Treatment of Hemangiomas by Means of Borderline Rays P Dethmers —p 983

Insulin and Metrazol Treatment in Schizophrenia G W Kasten —p 991

Total Extirpation of Thyroid in Angina Icteric I Schrag and S M Kropfeld —p 996

Treatment of Skin Diseases of Nervous Etiology M F Lohr —p 1001

**Treatment of Hemangiomas by Means of Borderline Rays**—Dethmers decided to apply from 800 to 1000 roentgens per application and 8000 roentgens in all at intervals of six weeks. The current strength was 20 milliamperes, the tension 10 kilovolts and the focus skin distance 10 cm. He employed this form of borderline treatment in sixty-one cases of hemangioma of which twenty were cases of naevus flammeus and forty-one were tuberosus hemangiomas. He gained the impression that the dosage was in some instances too small for naevus flammeus, but it was adequate for tuberosus hemangioma. The location seemed to be of no importance in tuberosus hemangioma but in naevus flammeus a localization on the face had a less favorable prognosis than on other parts of the body. The possibility of obliteration by pressure indicates a favorable prognosis in case of naevus as well as of tuberosus hemangiomas. The age of the patient is important in that the prognosis becomes more unfavorable with increasing age. About 50 per cent of the cases of naevus flammeus which are so feared for their refractory character, respond to the described treatment by means of borderline rays.

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